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THE INDUSTRIAL ARTS INDEX

FIRST ANNUAL CUMULATION

SUBJECT INDEX TO A SELECTED LIST OF
ENGINEERING AND TRADE PERIODICALS
FOR 1913

EDITED BY
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With this issue the *Industrial Arts Index* completes its first volume. The removal of the publishers from Minneapolis to White Plains prevented the publication of a number in December. The present issue however, is a complete index for 1913 of the magazines listed on the following page. Numbers one and two of volume two will be published as a double number in April and the publishers hope to resume thereafter the regular schedule.

The four numbers thus far published have been in the nature of an experiment. The list of periodicals is still far from complete, and the method of indexing will no doubt need modification as the work is enlarged. Suggestions will be welcome both as to the list of magazines and the improvement of the indexing. Ice and Refrigeration, The Proceedings of the American Society of Civil Engineers, the Electrical Journal, and American Machinist do not appear on the list as the publishers have not yet sent us copies for indexing. The Textile World Record, General Electrical Review, Journal of American Institute of Architects, American Gas Light Journal have been chosen as the next additions, while the indexing of Horseless Age and Electrical Review and Western Electrician which was necessarily omitted from this volume, will be carried back to the beginning of 1913.

One of the difficulties of indexing engineering magazines is to indicate the fact that certain articles appear in more or less similar form in several different periodicals. As the titles of these articles usually vary, it takes a good deal of time to establish their identity or partial identity. This happens frequently in the case of reports or abstracts of papers presented before engineering or trade societies. The original paper may be published in one magazine, a portion of it in another, reasonably full abstracts in a third, and perhaps a brief summary in a fourth. An expression of opinion is very much desired as to the importance of indicating the relationship of these articles to one another. Should they be combined in one entry under one title,

with some abbreviation or symbol to show the relationship e. g. "Same cond." or "excerpts," or might they be entered separately each under its own title and the time thus saved be spent more profitably in improvements in other directions?

Miss Louise Teich has edited copy and read the final proof of this index. Credit is due also to Mrs. Nellie Shimer for valuable assistance.

The American Institute of Mining Engineers publishes an index to volumes 36 to 40 of its Transactions, covering the years 1905 to 1909. This index supplements the "General Alphabetical and Analytical Index" of volumes 1 to 35. A new arrangement of material under group headings is introduced.

The American Society for Testing Materials has published an index to the first twelve volumes of the Proceedings of the society. Volume 1 contains the index to the twenty-eight bulletins that were issued at irregular intervals from 1898 to 1902. Volume 2 contains the index to the annual volumes which have been issued since that date, including the volume for 1913. A table of contents giving the contents for each individual volume follows the index proper.

The "Index to Transactions of the American Institute of Electrical Engineers" in two volumes has been issued by that society. "This index consists of two separate parts, each intended for a distinct purpose. First. There is an index of papers in which they are classified in natural groups and arranged chronologically in each group. Second. There is an index to specific data and information arranged alphabetically. The index of papers is intended for searchers desiring to locate papers on a given subject, and to aid in this search the papers have been characterized. These characterizations are not intended to be abstracts of the papers, but rather to give the scope and nature of their contents. . . . The index to specific data and information is intended for searchers desiring to make a complete study of the subject as presented in the Transactions. There is a great mass of valuable information hidden in discussions which has no very direct connection with the subject of the paper. This data can be found only by reference to such a topical index." (Introduction) Volume 1 covers the period from 1884 to 1900 inclusive; volume 2, from 1901 to 1910 inclusive.

List of Periodicals Indexed

- Am Eng**—American Engineer. See **Ry Age** (Mech ed).
- Am Ind**—American Industries. \$1; single numbers 10c. National Manufacturers Co., 30 Church St, New York.
- Am Inst E E Pro**—American Institute of Electrical Engineers. Proceedings. \$10; single numbers \$1. E. L. Hutchinson, sec., 33 W. 39th St, New York.
- Am Inst Min E Bul**—American Institute of Mining Engineers. Bulletin. subs. \$10; to members, public libraries, and educational institutions, \$5. Joseph Struthers, sec., 29 W 39th St, New York.
- Am Mach**—American Machinist. \$4; single * numbers 15c. Hill Pub. Co., 505 Pearl St, New York.
- Am Soc M E J**—Journal of the American Society of Mechanical Engineers. \$3; single numbers 35c. American Society of Mechanical Engineers, 29 W 39th St, N. Y.
- Arch & Bldg**—Architecture and Building. \$2; single numbers 20c. William T. Comstock Co., 23 Warren St, New York.
- Arch Rec**—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 119 W. 40th St, New York.
- Automobile**—Automobile. \$3; single numbers 20c. *Class Journal Co., 231 W 39th St, New York.
- Brickb**—Brickbuilder. \$5. Rogers & Manson, 85 ½ Water St, Boston.
- Colliery**—Colliery Engineer. \$2; single numbers 25c. International Textbook Co., Scranton, Pa. Formerly Mines and Minerals.
- Concrete Cem**—Concrete-Cement Age. \$1.50; single numbers 15c. Concrete-Cement Age Pub. Co., 97 West Fort St, Detroit, Mich.
- Dom Eng**—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 445-447 Plymouth Court, Chicago.
- Elec Ry J**—Electric Railway Journal. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Elec R & W Elec'n**—Electrical Review and * Western Electrician. \$3; single numbers 10c. Electrical Review Pub. Co., 608 S Dearborn St, Chicago.
- Elec W**—Electrical World. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Eng & Min J**—Engineering and Mining Journal. \$5; single numbers 15c. Hill Pub. Co., 505 Pearl St, New York.
- Eng M**—Engineering Magazine. \$3; single numbers 25c. Engineering Magazine Co., 140 Nassau St., New York.
- Eng N**—Engineering News. \$5; single numbers 15c. Hill Pub. Co., 505 Pearl St, New York.
- Eng Rec**—Engineering Record. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Foundry**—Foundry. \$1; single numbers 15c. The Foundry, Cleveland, O.
- Heat & Ven**—Heating and Ventilating Magazine. \$1; single numbers 10c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.
- Horseless Age**—Horseless Age. \$2. Horseless ½ Age Co., 250 W 5th St., N. Y.
- Ill U Eng Exp Sta Bul**—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.
- Ind Eng**—Industrial Engineering and Engineering Digest. \$2; single numbers 20c. Technical Literature Co., 120 W. 32d St., New York.
- Inland Ptr**—Inland Printer. \$3; single numbers 30c. Inland Printer Co., 624 Sherman St, Chicago.
- Int Marine Eng**—International Marine Engineering. \$2. Aldrich Pub. Co., 17 Battery Place, New York.
- Iron Age**—Iron Age. \$5; single numbers 20c. David Williams Co., 239 W 39th St, New York.
- Iron Tr R**—Iron Trade Review. \$4; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- J Account**—Journal of Accountancy. \$3; single numbers 30c. Ronald Press Co., Coopers-town, N. Y.
- J Fr Inst**—Journal of the Franklin Institute. \$5; single numbers 50c. Franklin Institute, Philadelphia.
- J Ind & Eng Chem**—Journal of Industrial and Engineering Chemistry. \$6. American Chemical Society, Easton, Pa.
- Locomotive**—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Mach**—Machinery. Engineering edition \$2; coated pa. \$2.50. Industrial Press, 140 Lafayette St, New York.
- Met & Chem Eng**—Metallurgical and Chemical Engineering. \$2; single numbers 25c. McGraw Pub. Co., 239 W 39th St, New York.
- Metal Ind n s**—Metal Industry new series. \$1; single numbers 10c. Metal Industry, 99 John St, New York.
- Mines & Min**—Mines and Minerals. See **Colliery**.
- Munic Eng**—Municipal Engineering. \$2; single numbers 25c. Engineering Pub. Co., Indianapolis, Ind.
- Power**—Power. \$2; single numbers 5c. Hill Pub. Co., 505 Pearl St, New York.
- Ry Age**—Railway Age Gazette. \$5; single numbers 15c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
- Ry Age (Mech ed)**—Railway Age Gazette, mechanical edition including the American Engineer. \$2; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
- Ry & Eng R**—Railway and Engineering Review. \$4; single numbers 15c. Railway Review, 1407 Ellsworth Bldg, Chicago.
- Continued as Railway Review.
- Sci Am**—Scientific American. \$3; single numbers 10c. Munn & Co., 361 Broadway, New York.
- Sci Am S**—Scientific American Supplement. \$5; single numbers 10c. Munn & Co., 361 Broadway, New York.
- Stevens Ind**—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N. J.
- U S Agric Bul**—United States. Dept. of Agriculture. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
- U S Bur Chem Bul**—United States. Bureau of Chemistry. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
- Included, after bulletin 166, in the Bulletins of the United States. Dept. of Agriculture.
- U S Bur Mines Bul**—United States. Bureau of Mines. Bulletin. Distributed free of charge. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Stand Bul**—Bulletin of the United States Bureau of Standards. quarterly. \$1. Superintendent of Documents, Union Bldg, Washington, D. C.
- U S Forest Serv Bul**—United States. Forest Service. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
- Included, after bulletin 127, in the Bulletins of the United States. Dept. of Agriculture.
- U S Pub Road Bul**—United States. Office of Public Roads. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
- Included, after bulletin 48, in the Bulletins of the United States. Dept. of Agriculture.

* A few numbers only are indexed

‡ Periodicals elected but not yet indexed

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Ability tests

Are men better typists than women? scientific tests made by J. M. Lahy. J. Boyer. *il Sci Am* 109:316 O 25 '13

Mental tests to grade pupils at school. *Sci Am S* 75:87 F 8 '13

Psychological tests of motormen. *Elec Ry J* 42:66-7 J 12 '13

Scientific selection of workmen. *Eng Rec* 67:171 F 15 '13

See also Efficiency, Industrial

Abrasives

Carborundum and alundum: a comparison with emery. S. A. Cochell. *Metal Ind n s* 11:249-50 Je '13

See also Emery wheels; Grinding and polishing

Absecon inlet

Channel- and beach-maintenance problem at Atlantic City. R. R. Raymond. *map Eng N* 70:150-4 J 12 '13

Proposed improvement of an ocean bar at Atlantic City, N. J. L. M. Haupt. *Eng N* 70: 523-4 S 11 '13

Absorption of light

Absorption of light in space. E: S. King. *il Sci Am S* 75:171 Mr 15 '13

Absorption spectra. *See* Spectra—Absorption spectra

Absorption system. *See* Refrigeration and refrigerating machinery

Absorption towers

Absorption and reaction towers for chemical factories. *diags Met & Chem Eng* 11:359-61 Je '13

Abu, Mount

Temples of Dilwara on Mount Abu. T. G. Dalal. *il Sci Am S* 76:200-1 S 27 '13

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Acacias

Economic study of acacias. C: H. Shinn. *il U S Agric Bul* 9:1-38 '13

Academic efficiency. W: Kent. Stevens *Ind* 30: 20-36 Ja '13

Accelerometer

Detecting resistance—saving fuel. W. C. Marshall. *il Automobile* 28:833-5, 888-90, 937-9, 978-9 Ap 17-My 8 '13

Tester uses accelerometer on trucks. *Automobile* 29:200-3 J 31 '13

Accident law. *See* Negligence; Personal injuries; Workmen's compensation

Accident prevention. *See* Safety devices and measures

Accidents

Few miscellaneous accidents. *Sci Am S* 76: 407 D 27 '13

Prevention of elevator accidents. R. P. Bolton. *Ind Eng* 13:251-3 Je '13

See also Automobiles—Accidents; Aviation—Accidents; Building failures; Collisions at sea; Derailments; Life saving; Railroads—Accidents; Safety devices and measures; Shipwrecks; Street accidents; Street railroads—Accidents

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Accident prevention. J. B. Douglas. *il Sci Am S* 76:232-4 O 11 '13

Accident prevention at Rochester, N. Y. *il Am Ind* 13:24-7 Ap '13

Accident prevention in construction work. *Sci Am S* 75:362-3 Je 7 '13

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Accidents in iron and steel mills: comparison for the United States and Germany. *Iron Age* 92:425 Ag 21 '13

Accidents on Catskill aqueduct. *Eng Rec* 67: 320 Mr 22 '13

Conservation of the worker. A. Cotter. *il Eng M* 45:489-505 J 1 '13

Industrial accident costs in Massachusetts. *Eng Rec* 67:338-9 Mr 29 '13

Lessons of a power plant accident. H. S. Knowlton. *Power* 37:49-50 Ja 14 '13

Luck, law and industrial accidents discussed. W: H. Doolittle. *Iron Tr R* 52:921-2 Ap 17 '13; Same cond. *Iron Age* 91:945-6 Ap 17 '13

Metal-mining accidents; Catskill aqueduct accidents. *Eng & Min J* 95:1009-10 My 17 '13

Museums of safety and their activities: a brief history of movement for prevention of industrial accidents. M. S. Hutton. *Mach* 19:31-3 S '12

Ordinary precautions in construction work. *Eng Rec* 67:433-4 Ap 19 '13

Practical work in industrial advancement. *Am Ind* 13:12-5 J 1 '13

Prevention of accidents in central stations. *il Elec W* 61:986-9 My 10 '13

Prevention of accidents in factories. *il Sci Am S* 76:212-4 O 4 '13

Prevention of disease versus cost of living. T: F. Harrington. *Sci Am S* 75:402-3 Je 28 '13

Recording memoranda on accident prevention. T: D. West. *Am Ind* 14:19-20 D '13

Relative vocational hazards. H. Davis. *Colliery* 33:185-6 Ap '13

Safety engineering should form part of every engineering course. G. Gilmour. *il Sci Am S* 76:36-9 J 19 '13

Sanitation and safety in heavy-chemical production. F. D. Patterson. *il Am Ind* 13:28-31 Mr '13

Taking chances on a sewer trench. *il Munic Eng* 44:184-5 Mr '13

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Account analysis

Account analysis in commercial banks. H. C. Thompson. *J Account* 16:210-29 S '13

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 Accounting system for electric companies. L. W. Allison. *Power* 38:697-700 N 11 '13
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 Assessments on stock of corporations organized under the laws of California. *J Account* 15:117-21 F '13
 Cotton mill accounts. J. Hunter. *J Account* 16:110-9 Ag '13
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 Depreciation reserves vs. depreciation funds. E. A. Saliers. *J Account* 16:358-65 N '13
 Determination of the income rate of investment. B. D. Kribben. *J Account* 15:336-40 My '13
 Development of systems of control. F. R. C. Steele. *J Account* 16:280-90 O '13
 Distribution of accounts of road construction. *Munic Eng* 44:524-7 Je '13
 Ford service system. *Automobile* 28:470-3 F 13 '13
 Investigating an industry: accounting and sales departments. W. Kent. *Ind Eng* 13:208-11 My '13
 Language of accounting. C. M. VanCleve. *J Account* 16:424-31 D '13
 Lumber company accounting. J. A. McDonald. *J Account* 15:433-43 Je '13
 Measuring efficiency on a profit basis. E. B. Passano. *Iron Tr R* 52:682-4 Mr 20 '13
 Practical principles of rational management. A. H. Church. *Eng M* 45:166-73 My '13
 Some essentials of public service accounting. A. F. Elkins. *Elec Ry J* 42:1276 D 20 '13
 Supply jobbers' convention considers accounting. *Elec W* 62:1037-8 N 22 '13
 Trade union accounting. A. E. Carpenter. *J Account* 16:440-2 D '13
 Uniform accounting systems. E. F. Gay. *J Account* 16:268-79 O '13

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Acetylene lamps in coal mines. *Colliery* 34:49-51 Ag '13

Acetylene lighting system defended. R. H. Coombs. *Automobile* 29:514-5 S 18 '12

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Acetylene-electric flame. C. F. Lorenz. *il Elec W* 61:511-5 Mr 8 '13

Acetylene for lighthouses, buoys, etc.

Marine lighting equipment of the Panama canal. J. Pattison. *diags Eng N* 69:1057-9 My 22 '13

Acid-proofing the floors of battery rooms. plan *Met & Chem Eng* 11:56 Ja '13

Acid waste

Disposal of acid waste in schools. J. Graham. *diags Dom Eng* 63:212-4 My 24 '13

Acidimetry

Benzoic acid as an acidimetric standard. G. W. Morey. *U S Bur Stand Bul* 8:643-50 Mr 1 '13

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Manufacture of chemically pure acids; problems encountered. J. T. Baker. *il Sci Am S* 75:94-6 F 8 '13

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Acorns

Acorns and their uses. *il Sci Am* 108:248 Mr 15 '13

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Frame work on an adding typewriter. R. Mawson. *il Am Mach* 38:847-50 My 22 '13

Adobe bricks

Strength of adobe brick. *Eng & Min J* 96:1074 D 6 '13

Advertising

Advertising for the printer. C. W. Hoyt. *Inland Ptr* 50:525-7 Ja '13

Advertising in printing trade. M. Gross. *Inland Ptr* 50:524-5 Ja '13

Advertising printing—a profitable field. E. R. Roeder. *Inland Ptr* 52:381-2 D '13

Cost of advertising in country daily and weekly newspapers. E. K. Whiting. *Inland Ptr* 51:718-20 Ag '13

Higher advertising rates for country papers. *Inland Ptr* 51:557-9 Ji '13

How shall we make advertising effective? J. K. Allen. *Dom Eng* 64:341-2 S 20 '13

It pays to advertise. A. G. Brenton. *Inland Ptr* 50:843-5 Mr '13

Newspaper work. O. F. Byxbee. See monthly numbers of the *Inland printer*

Printers' advertising. W. H. Wright. *Inland Ptr* 51:838-40 S '13

Publicity for plumbers. *Dom Eng* 62:311-2 Mr 15 '13

Reaching the public through printing. W. T. O'Donnell. *Inland Ptr* 51:406-8 Je '13

Securing business by a house organ. C. W. Hoyt. *Inland Ptr* 51:682-4 Ag '13

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Sliding scale of advertising costs. J. C. Morrison. Inland P'tr 52:433-6 D '13
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Need for an aerodynamic laboratory in the United States. W. I. Chambers. Eng M 44: 764-7 F '13

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Comparative efficiency of Eiffel surfaces: studies in aeroplane design. R. D. Andrews. Sci Am S 75:397 My 17 '13

Laws of similitude and their application in aeroplane design. L. Bairstow. Il Sci Am S 76:109-10 Ag 16 '13

Reflections on aerial flight: fallacy of pendulum stabilizers. H. R. A. Mallock. diag Sci Am S 76:398-400 D 20 '13

Stream lines around obstacles to air currents. Il Sci Am S 75:268-9 Ap 26 '13

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Airman and the weather: aeronautical meteorology. C. F. Talman. Il Sci Am 109:94 Ag 2 '13

Direction of aerial highways. Sci Am 109:298 O 18 '13

Germany's aeronautical weather bureau. Sci Am 108:262 Mr 22 '13

Measurement of the true static pressure in a moving fluid—application to an aeroplane barograph. A. F. Zahm. J Fr Inst 175:593-9 My '13

Progress in air navigation. J. D. Holmes. Sci Am 109:211 S 13 '13

Recent aviation events. Il Sci Am 109:229 S 20 '13

Reflections on aerial flight: fallacy of pendulum stabilizers. H. R. A. Mallock. diag Sci Am S 76:398-400 D 20 '13

Scientific instruments used in aeronautics: devices for determining direction, speed and side-slip of aeroplanes. H. Darwin. Il Eng M 45:893-5 S '13

Stability in flying machines. A. A. Merrill. Am Soc M E J 35:1465-78 O '13

Traveling through inter-stellar space: what type of motor would you employ? Sci Am S 75:263 Ap 26 '13

Way stations for a relay flight to Europe. H. H. Supplee. map Sci Am 109:496 D 27 '13

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Aeroplane in war. Sci Am 108:574 Je 28 '13

Air scouting at the Italian maneuvers. Sci Am 109:355-6 N 1 '13

Bombarding a defense with dirigibles. Sci Am 109:2 Jl 5 '13

Bomb-dropping in the Balkans. Sci Am 109: 278 O 11 '13

Coming army aeroplanes. C. H. Claudy. Sci Am 108:127 F 1 '13

Curtiss military biplane. S. Y. Beach. Il Sci Am 108:240 Mr 15 '13

Dissecting the military dirigible airship V.I. A. Gradenwitz. Il Sci Am 109:164 Ag 30 '13

Fighting in the air. C. Dienstbach. Sci Am 109:86 Ag 2 '13

Military supremacy of the air. T. M. R. von Keler. Sci Am 108:6 Ja 4 '13

Military value of low flying. C. Dienstbach. Sci Am 109:210 S 13 '13

Mining the air with balloon torpedoes. H. Bannerman-Phillips. Sci Am 108:538 Je 11 '13

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Repelling aeroplanes from the ground. C. Dienstbach. Sci Am 109:319 O 25 '13

Requirements for scout type military aeroplane. Sci Am S 75:156 Mr 8 '13

Sea and air command: Germany's new policy in its relation to the British naval supremacy. Il Sci Am S 75:392-5 Je 21 '13

Why we need an aerial navy. Sci Am 108: 330 Ap 12 '13

Work of aircraft in the French maneuvers, 1913. H. Bannerman-Phillips. Il map Sci Am 109:322 O 25 '13

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Naval airship. C. Dienstbach. Sci Am 109: 378 N 15 '13

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Aeronautics in Germany. Sci Am S 75:322 My 24 '13

Aeroplane, motor, or aviator? E. L. Ovington. Il Eng M 44:339-44 D '12

Data from German aviation motor contest of interest to builders of automobile motors. Automobile 29:716-8, 776-8 O 16-23 '13

Gyroscopic action of gnome engines. J. L. Collan. Sci Am 108:31 Ja 11 '13

Latest motors at the Paris aero show. Il Sci Am S 75:21-2 Ja 11 '13

Progress in aeroplane design and aeronautical motors. Mach 19:753-4 Je '13

Simple formula for computing gyroscopic forces in an aeroplane. E. V. Huntington. Sci Am S 75:247 Ap 19 '13

Tests of German aeronautic motors. Sci Am 108:196 Mr 1 '13

Upside-down motors at Kaiser prize contest for German-made aviation engines. diag Automobile 29:670-1 O 9 '13

Aeroplane propellers

Feathering air propeller. Sci Am 108:154 F 15 '13

Aeroplane races

Race for the Gordon Bennett cup. J. J. Ide. Il Sci Am 109:313 O 25 '13

Rheims aviation meeting and the Gordon Bennett cup race. J. J. Ide. Il Sci Am S 76:260-1 O 25 '13

Scientific American's contribution to the development of the racing aeroplane. Sci Am 109:358 N 8 '13

Aeroplane stability and stabilizers

- Automatic and inherent stability of aeroplanes. Sci Am 108:134 F 8 '13
- Automatic longitudinal stabilizer for aeroplanes. W. H. Dettman. Sci Am S 75:112 F 15 '13
- Autostable; a flying machine possessing a high degree of automatic stability. W. I. Chambers. Sci Am S 75:39-90 F 8 '13
- Dished disk stabilizer. il Sci Am 109:437 D 6 '13
- Engineering applications of the gyroscope. E. A. Sperry. il J Fr Inst 175:474-82 My '13
- Gyroscope in aviation. E. A. Sperry. il Eng M 45:574-7 J1 '13
- Lateral stability of aeroplanes. H. Chatley. Sci Am S 75:128 F 22 '13
- Making the aeroplane safe by the gyroscopic stabilizer. R. G. Skerrett. il Sci Am 108:511-2 Je 7 '13
- Reflections on aerial flight: fallacy of pendulum stabilizers. H. R. A. Mallock. diags Sci Am S 76:398-400 D 20 '13
- Stability in flying machines. A. A. Merrill. Am Soc M E J 35:1465-78 O '13

Aeroplanes

- Aerial battleships and flying torpedo boats: German dirigibles versus French aeroplanes. Sci Am S 76:35 J1 19 '13
- Aeronautic show at Olympia. S. Y. Beach. il Sci Am S 75:196-7 Mr 29 '13
- Aeronautics and aviation in 1912. Sci Am 108:30 Ja 11 '13
- Aeronautics in Germany. Sci Am S 75:322-3 My 24 '13
- Aero-parachute. Levavasseur and Gastambide. Am Soc M E J 35:1285-7 Ag '13
- Aeroplane design. G. Linton. Sci Am 108:197 Mr 1 '13
- Aeroplane in war. Sci Am 108: 574 Je 28 '13
- Aeroplane, motor, or aviator? E. L. Ovington. il Eng M 44:339-44 D '12
- Autostable; a flying machine possessing a high degree of automatic stability. W. I. Chambers. Sci Am S 75:39-90 F 8 '13
- Biggest flying machine in the world: bi-plane of Sikorsky. il Sci Am 109:280 O 11 '13
- Coming army aeroplanes. C. H. Claudy. Sci Am 108:127 F 1 '13
- Comparative efficiency of Eiffel surfaces: studies in aeroplane design. R. D. Andrews. Sci Am S 75:307 My 17 '13
- Curtiss military biplane. S. Y. Beach. il Sci Am 108:240 Mr 15 '13
- Dangerous position of aeroplane motors. W. F. Barnwell. Sci Am 108:491 My 31 '13
- Decision in the Wright aeroplane patent case. Sci Am 108:273 Mr 22 '13
- Design and use of scientific instruments in aeronautics. H. Darwin. Sci Am S 76: 66-7 Ag 2 '13
- Drzewiecki following surface aeroplane with inherent longitudinal stability. il Sci Am 108:137 F 8 '13
- Elevator action of the rudder. Sci Am S 75:7 Ja 4 '13
- Etrich monoplanes. S. Y. Beach. il Sci Am S 75:44 Ja 18 '13
- Fallacy of flexible fabric wings. J. G. Hanna. Sci Am 108:431 My 10 '13
- Flexible fabric aeroplane wings: Hanna replies to Linton. J. G. Hanna. Sci Am 109:143 Ag 23 '13
- Giant aeroplane built by Igor Sikorsky. Sci Am 109:183 S 6 '13
- Hempstead to Washington flight. il Sci Am S 76:135 Ag 30 '13
- How non-inflammable celluloid is actually used for automobiles and aeroplanes. Automobile 28:1022-3 My 15 '13
- Laws of similitude and their application in aeroplane design. L. Bairstow. il Sci Am S 76:109-10 Ag 16 '13
- Measuring the height of an aeroplane. Sci Am S 75:295 My 10 '13
- Morane-Saulnier monoplane. J. J. Ide. il Sci Am S 75:172-3 Mr 15 '13
- Moreau automatically balanced monoplane. il Sci Am 108:137 F 8 '13
- Nieuport monoplane, whose success depends on its wing section. J. J. Ide. il plans diag Sci Am S 76:284-6 N 1 '13

- Plan of aeroplane: reply to Mr. Hanna. G. Linton. Sci Am 109:51 J1 19 '13
- Recent aviation events. il Sci Am 109:229 S 20 '13
- Repelling aeroplanes from the ground. C. Dienstbach. Sci Am 109:319 O 25 '13
- Requirements for scout type military aeroplane. Sci Am S 75:156 Mr 8 '13
- Side-slipping of aeroplanes. E. G. Still. Sci Am 109:471 D 20 '13
- Smithsonian institution and the Aero club of Washington celebrate Langley day. Sci Am 108:453 My 17 '13
- Stress considerations in aeroplane design. A. F. Zahm. il J Fr Inst 175:601-14 Je '13
- Two-rudder control system for aeroplanes. P. W. Wilcox. il Sci Am S 75:212-3 Ap 5 '13

See also Aeronautics; Aeroplane motors; Aeroplane propellers; Aeroplane stability and stabilizers; Aviation; Hydroaeroplanes

Safety devices

- Prevention of aviation accidents. E. G. Still. Sci Am 109:259 O 4 '13
- African mahogany. *See* Gambia mahogany
- Agricultural cooperation. *See* Agriculture, Co-operative
- Agricultural credit
- Railroads' interest in agricultural credit. Ry & Eng R 53:959 O 11 '13
- Agricultural machinery
- Economics of the farm tractor. P. S. Rose. il Sci Am 108:114-5 F 1 '13
- Four-cylinder pumps in Bellem motor which render starting from cold with kerosene possible. Automobile 29:507-8 S 18 '13
- French kerosene motor and German motor plough. il Automobile 29:479-80 S 11 '13
- Gasoline and oil power on the farm. P. S. Rose. Sci Am 108:120 F 1 '13
- Machining gas tractor parts by novel methods. il Iron Tr R 52:623-5 Mr 13 '13
- Winnipeg tractor trials, 1913. L. W. Ellis. Sci Am 109:201 S 6 '13
- See also* Motor plows; Mowing machines; Traction engines

Agricultural meteorology. *See* Meteorology, Agricultural

Agricultural pests. *See* Field mice

Agricultural products. *See* Crops; Farm produce; Forest products

Agriculture

See also Agricultural machinery; Drainage; Electricity on the farm; Farm buildings; Fertilizers and manures; Forests and forestry; Irrigation; Meteorology, Agricultural; Reclamation of land; Seeds; Soils; Trees

Accounting

- Farm accounts. J. Hunter. J Account 15: 166-73 Mr '13

Study and teaching

- Agriculture in the high schools. Sci Am 108: 554 Je 21 '13
- Success of the county agriculturist plan. C. M. Carroll. Sci Am 108:124 F 1 '13

Germany

- Increasing the food supply of a nation: how intensive farming is practised in Germany. H. C. Price. il Sci Am 108:111-2 F 1 '13

United States

- Agriculture, manufactures and railways, a study of capital values and net returns. Sci Am S 75:66-7 F 1 '13
- Our record-breaking crop for 1912. Sci Am S 75:18-9 Ja 11 '13
- Railways and agriculture compared: carriers' outputs increased much more in proportion to facilities than farmers'. Ry Age 54:796-9 Ap 4 '13

Agriculture, Cooperative

- Enlarging the agricultural unit. E. Davenport. Sci Am S 75:29 Ja 11 '13
- Success of the county agriculturist plan. C. M. Carroll. Sci Am 108:124 F 1 '13

Air

Air as an insulator when in the presence of insulating bodies of higher specific inductive capacity. C. L. Fortescue and S. W. Farnsworth. *il Am Inst E E Pro* 32:758-72 Mr '13; Discussion. 32:1132-57 My '13

Charts showing weights per cubic foot and specific heats of mixtures of air and water vapor. W. C. Rowse. *Am Soc M E J* 35:1375-80 S '13

Electric strength of air. J. B. Whitehead and T. T. Fitch. *Biblog Am Inst E E Pro* 32:1316-33 Je '13; Discussion. 32:2300-15 D '13

Law of corona and dielectric strength of air. F. W. Peek, jr. *Am Inst E E Pro* 32:1336-55 Je '13; Discussion. 32:2300-15 D '13

Ozone in ventilation. M. W. Franklin. *Heat & Ven* 10:30-5 O '13

See also Aerodynamics; Aeronautics; Atmosphere; Barometer; Compressed air; Humidity; Liquid air; Meteorology; Ozone; Psychrometry; Ventilation

Air, Compressed. *See* Compressed air

Air, Liquid. *See* Liquid air

Air, Purification of. *See* Air filters; Air washing; Dust removal; Smoke prevention; Ventilation

Air brake association

20th annual convention, St. Louis, May, 1913. *Ry Age* 54:1033-4, 1067-9 My 9-16 '13

20th annual convention, St. Louis, May, 1913. *Ry Age* (Mech ed) 87:286-8 Je '13

Twentieth annual convention, St. Louis, May, 1913. *Ry & Eng R* 53:432-5, 439-40, 456-8 My 10-17 '13

Air brake hose

Air brake hose. F. Dannert. *Ry Age* 54:869 Ap 18 '13

Air brake hose. J. S. Sheafe. *Am Eng* 87:116 Mr '13

Air brake hose. J. S. Sheafe. *il Ry Age* 55:711-2 O 17 '13

Air hose failures. *Ry Age* (Mech ed) 87:329 Je '13

Air hose failures. T. W. Dow. *Ry Age* 54: 1068-9 My 16 '13

Damage to air brake hose in shops. *Ry & Eng R* 53:673 J1 12 '13

Investigation of the troubles with air brake hose. *Ry Age* 54:275-6 F 14 '13

Air brakes

Air brakes and modern conditions. W. V. Turner and P. H. Donovan. *Ry Age* 55:415-8 S 5 '13

Air brakes and the Stamford collision. *Eng N* 69:1327-8 Je 26 '13

Air brakes for heavy steel passenger cars. A. L. Humphrey. *Am Soc M E J* 35:841-4 My '13; Same. *Ry & Eng R* 53:413 My 3 '13

Automatic brake slack adjuster. *diags Ry Age* 54:801 Ap 4 '13

Bettendorf variable load brake. *il diag Ry & Eng R* 53:568-9 Je 14 '13

Brakes on fast trains. W. G. Clark. *Ry & Eng R* 53:709-10 J1 26 '13

Braking efficiency. *Ry & Eng R* 53:39-40, 186-7 Ja 11, Mr 1 '13

Care and maintenance of air brakes. R. Wolfe. *Am Eng* 87:265-6 My '13

Defective applications of brake apparatus. F. J. Borer. *Ry Age* (Mech ed) 87:496 S '13

Electro-pneumatic brake. *Am Eng* 87:95-6 F '13

Modern air brake equipment as applied to steam roads. C. U. Joy. *il Ry & Eng R* 53:572-4 Je 14 '13

New York city brake order. J. N. Dodd. *Elec Ry J* 42:414-9 S 13 '13

Q-R locomotive brake equipment, plan *Ry & Eng R* 53:106-7 F 1 '13

Stamford collision on the New Haven railroad. *Eng N* 69:1292-3 Je 19 '13

Triple valve lubrication. *Ry & Eng R* 53: 462-3 My 17 '13

Twentieth annual convention of Air brake assn., St. Louis, May, 1913. *Ry & Eng R* 53:432-5, 439-40, 456-8 My 10-17 '13

Twentieth annual convention of Air brake assn., St. Louis, May, 1913. *Ry Age* (Mech ed) 87:286-8 Je '13

Undesired quick action of brakes lessened by use of graphite. C. N. Remfry. *Ry Age* (Mech ed) 87:317-8 Je '13; Same cond. *Ry Age* 54: 1033 My 9 '13

United States air brake. *diag Ry Age* (Mech ed) 87:508-9 S '13

Will triple valves operate as intended? S. W. Dudley. *Ry Age* (Mech ed) 87:319-23 Je '13; Same cond. *Ry Age* 54:1067-8 My 16 '13

Wright safety air brake appliance. *il diags Ry & Eng R* 53:1091 N 22 '13

See also Air brake hose; Brake shoes; Safety devices

Air chambers

Functions and design of air chambers. C. G. Richardson. *il Power* 38:70-2 J1 8 '13

Air compressors

Air compressor explosions. L. Duncan. *Eng & Min J* 95:695-6 Ap 5 '13

Air-compressor installation and operation. E. M. Ivens. *diags Power* 38:912-5 D 30 '13

Air compressors and compressed-air machinery. R. L. Streeter. *il Eng M* 45:822-32; 46: 19-36, 177-93, 381-99 S-D '13

Air receiver explosions. L. Balliet. *Power* 37: 310 Mr 4 '13

Application of electric power to mining. C. A. Tupper. *il Iron Tr R* 52:35-9 Ja 2 '13

Belt-driven air compressor. *il Foundry* 41: 507-8 N '13; Same. *Iron Tr R* 53:916 N 20 '13

Care and lubrication of air compressors. *Colliery* 34:104 S '13; Same. *Locomotive* 29:274-5 O '13

Compressed air system of the Anaconda copper mining co., Butte, Mont. B. V. Nordberg. *il Am Inst Min E Bul* 81:2225-87 S '13

Construction and operation of turbo-blowers and compressors. F. zur Nedden. *il Eng M* 44:35-9, 199-203 O-N '12

Fusible signal plugs for air compressing machinery. *il Colliery* 33:528-9 Ap '13; Same cond. *Eng Rec* 67:sup 43 F 1 '13

Improved two-stage air compressors of medium size. *il Ind Eng* 13:182-3 Ap '13

Intercooling in air compression. R. S. Howard. *Ind Eng* 13:237-40 Je '13

Lubrication of air compressors. *Power* 37: 194 F 11 '13; Same. *Eng & Min J* 95:661-2 Mr 29 '13

Portable air compressors. *il Colliery* 34:260 N '13

Rotary hydro-pneumatic compressor. *il Iron Age* 92:712 O 2 '13

Sullivan angle-compound air compressor. *il Eng N* 70:1127 D 4 '13; *Power* 38:814-6 D 9 '13

Synchronous-motor-driven air compressor. *il Elec R & W Elec N* 62:47 Ja 4 '13

Variable-volume air compressor, built by the Bury compressor co., Erie, Pa. *il Iron Age* 92:1383 D 18 '13

Warren hydraulic air compressor. *il Eng & Min J* 95:368 F 15 '13

Worthington turbo blowers and compressors. *il Power* 37:12-3 Ja 7 '13

See also Air pumps; Compressed air

Air engines

See also Compressed air

Air filters

Novel German air filter. O. E. Trautmann. *il Eng N* 69:253 F 6 '13

Water-spray filter for turbo-generator ventilation. *Elec W* 62:94-5 J1 12 '13

See also Air washers

Air flow

Air measurement by Pitot tubes; abstract of paper read before Am. Soc. M. E., 1912. C. H. Treat. *plans Eng N* 69:204-9 Ja 30 '13

Design of air ducts. L. A. Harding. *Heat & Ven* 10:26-32 Ap '13

Loss of pressure due to elbows in pipe. *diags Dom Eng* 64:238-41 Ag 30 '13; Same cond. *Power* 38:303-4 Ag 26 '13

Measurement of air in fan work; discussion of paper by C. H. Treat. *Am Soc M E J* 35: 295-9, 627-41 F. Ap '13

Measuring air velocities through registers. *Heat & Ven* 10:35-6 Ap '13

Special Venturi style elbows. F. L. Busey. *diags Power* 38:369-70 S 9 '13

Air flow - *Continued.*

- Time studies and air consumption. A. Formis. *il Eng & Min J* 95:1183-5 *Je* 14 '13
 Use of Pitot tube in air measurements. F. L. Busey. *plan Power* 37:156-8 *F* 4 '13
 Use of Pitot tube in air measurements. L. Loeb. *Power* 37:302-4 *Mr* 1 '13

See also Gas flow; Steam flow

- Air in surface condensation.** G. A. Orrok. *diag Power* 38:8-10 *Jl* 1 '13

Air lift

- Investigation of the air lift pump. Met & Chem Eng 11:129 *Mr* '13

See also Compressed air

- Air maps.** *See* Maps, Aeronautic

- Air measurement.** *See* Air flow

- Air meters.** *See* Air flow

- Air passages.** *See* Respiratory organs

Air pipe lines

- Substantial surface air pipe line employed by the Witherbee-Sherman company, at Mineville, N. Y. *il Eng & Min J* 96:1019-20 *N* 29 '13

Air pollution

- Inorganic contamination of city air. A. K. Ohmes. *Heat & Ven* 10:26-7 *My* '13

- Methods for investigating and recording atmospheric impurities, including the soot and dust suspended in the atmosphere. J. B. C. Kershaw. *diags Met & Chem Eng* 11:339-42 *Je* '13

- Standard apparatus and method of measuring the amount and character of atmospheric pollution. J. B. C. Kershaw. *Met & Chem Eng* 11:615-6 *N* '13

- See also* Air filters; Air washers; Dust; Smoke; Ventilation

Air pumps

- Air pump maintenance. Ry & Eng R 53:803 *Ag* 23 '13

- Air pump steam head repairs. J. A. Jesson. *diags Ry Age* (Mech ed) 87:605-6 *N* '13

- Air pumps. *diags Ind Eng* 13:230-2 *My* '13

- Automatic air pump. *diag Power* 38:262-3 *Ag* 19 '13

- Comparative investigation of water-jet air pumps. Grunewald. *Am Soc M E J* 35:524-7 *Mr* '13

- Compound locomotive air pump. *diag Am Eng* 87:101 *F* '13

- Condensers, air and circulating pumps. C. A. McAllister. *diags Int Marine Eng* 18:343-6 *Ag* '13

- Design for low-service rotary vacuum and air-compressor pumps. *diag Eng N* 70:1010 *N* 20 '13

- Diagrams from air pump. R. C. H. Heck. *Power* 38:515 *O* 7 '13

- Independent air pump for condensers. R. O. Richards. *Power* 37:504-5 *Ap* 8 '13

- Independent air pump for the condenser. *diags Power* 37:134-6 *Ja* 28 '13

- Influence of air pumps on the military efficiency of turbine-driven warships. D. B. Morison. *il Int Marine Eng* 18:420-5 *O* '13

- Mesta single-stage air pump. *il diag Power* 38:36 *Jl* 1 '13

- Modern condensing systems. *Power* 37:511-2 *Ap* 8 '13

- Modern pumps for high vacua. E. N. da C. Andrade. *il Sci Am S* 75:141 *Mr* 1 '13

- Molecular air pump. W. Gaede. *il Eng M* 44:614-7 *Ja* '13

- New four-cylinder air pump. *il Sci Am S* 76:205 *S* 27 '13

- New type of reciprocating air pump. *il Iron Age* 91:884 *Ap* 10 '13

- Oddie-simplex steam-air pumps. *il Am Soc M E J* 35:902-3 *My* '13

- Rotary air pump for high-vacuum condenser service. *diag Eng N* 70:507 *S* 11 '13

- Rotary high-vacuum air pump designed by Thyssen & co. *diag Eng N* 70:1125 *O* 4 '13

- Thyssen vacuum pump. *il diags Power* 38:660-2 *N* 4 '13

- Wheeler centrifugal high vacuum air pump. *il Iron Age* 92:1041 *N* 6 '13

- Wheeler turbo-air pump. *il Ind Eng* 13:267-8 *Je* '13; *Same. Eng M* 45: sup 5-6 *Jl* '13; *Same. Power* 38:161-3 *Jl* 29 '13

- Worthington rotary air pump. W. V. Treeby. *diags Power* 38:122-3 *Jl* 22 '13

See also Air compressors

Air resistance

- Air resistance to falling bodies. A. A. Somerville. *il Sci Am* 108:429 *My* 10 '13

See also Air flow; Train resistance; Wind pressure

Air washers

- Air washer vs. centrifugal collector on dust-collecting systems. J. D. White. *Power* 38:572 *O* 21 '13

- Air washers and dust removal. *il Heat & Ven* 10:24-7 *F* '13

- Sturtevant air washer. *il Heat & Ven* 10:48-50 *N* '13; *Same. Power* 38:804-6 *D* 2 '13

Air washing

- Air washing as a means of obtaining clean air in buildings. G. C. Whipple and M. C. Whipple. *Heat & Ven* 10:13-5 *S* '13; *Same cond. Eng N* 70:571-3 *S* 13 '13

- Tale of three bottles. E. T. Murphy. *il Heat & Ven* 10:45-7 *My* '13

See also Air filters; Dust removal; Ventilation

Airships. *See* Balloons and airships**Akron, Ohio****Flood, 1913**

- Flood of March 25. *il map Eng N* 69: 749-50 *Ap* 10 '13

Sanitary affairs

- Sewage-treatment studies at Akron, Ohio. *il plans Eng Rec* 67:387-90 *Ap* 5 '13

Alabama coal operators' association

- 5th annual session, Marvel, Ala., 1913. W. Z. Price. *il Colliery* 34:69-73 *S* '13

Alabama traction, light and power company, Birmingham

- Hydroelectric station on the Coosa river and steam station at Gadsden. *il Elec W* 62:527-30 *S* 13 '13

Alaska

- Experiences of two miners at Shushanna. *Eng & Min J* 96:675-6 *O* 11 '13

- Reminiscences of the Nome rush of 1900. G. L. Sheldon. *Eng & Min J* 95:262-4 *F* 1 '13

Boundaries

- Glaciers and international boundaries. L. Martin. *map il Sci Am S* 76:129 *Ag* 30 '13

- Settlement and survey of the Alaskan boundary. J. A. Flemer. *il map Eng M* 45:209-26 *My* '13

Description and travel

- Across Alaska by motor. *Eng & Min J* 96:702-3 *O* 11 '13

- Trucking to the polar circle. *il Automobile* 29:592-3 *O* 2 '13

Economic conditions

- Alaska's need of railway development. E. E. Swergal. *map Ry Age* 55:421-3 *S* 5 '13

- Proposed government ownership of railroads in Alaska. *Ry Age* 54:1119-20 *My* 23 '13

- Report of the Alaska railroad commission, Jan., 1913. *map Eng N* 69:564-7 *Mr* 20 '13

Industries and resources

- Conservation as applied in Alaska. G. L. Sheldon. *Eng & Min J* 95:484 *Mr* 1 '13

- Development of Alaska coal lands. *Colliery* 33:534-5 *My* '13

- Mining in Alaska in 1912: abstract of report to U. S. Geol. S. Eng & Min J 95:130-3 *Ja* 11 '13; *Same cond. Eng M* 44:788-90 *F* '13**

Laws

- New laws and transportation in Alaska. *il Eng & Min J* 96:634-5 *O* 4 '13

Alaska gold mines company

- First report, from organization in August, to end of 1912. *Eng & Min J* 95:1133-4 *Je* 7 '13

Alaska railroad commission

- Report, Jan., 1913. *map Eng N* 69:564-7 *Mr* 20 '13

Albany, New York**Architecture**

State education building. II plan Arch & Bldg 45:173-81 My '13

Flood, 1913

Albany filtration plant during the flood. Eng Rec 67:374 Ap 5 '13

Flooding of the Albany filtration plant and previous high floods. W. Greenalch. II Eng N 69:754-5 Ap 10 '13

Sanitary affairs

Typhoid outbreak, due to flooded filters. T. Horton. Eng N 69:1021-3 My 15 '13

Albany, Oregon

Tuning up filters at Albany. Eng Rec 68:553-1 N 15 '13

Albumen

Electrical properties of egg-white. E. F. Northrup. J Fr Inst 175:413-9 Ap '13

Alcohol

Density and thermal expansion of ethyl alcohol and its mixtures with water. N. S. Osborne and others. U S Bur Stand Bul 9: 327-174 Ap 15 '13; Summary. J Fr Inst 175: 165-7 F '13

New instrument for measuring strength of alcoholic liquids. II Sci Am S 75:342 My 31 '13

Bibliography

Bibliography of the literature on alcohol and alcoholometry. E. C. McKelvy. U S Bur Stand Bul 9:126-74 Ap 15 '13

Alcohol, Denatured

Industrial alcohol. Sci Am 108:529 Je 7 '13
Removing carbon from gas engines with denatured alcohol. J. A. Angladat. Iron Age 92: 616-7 S 18 '13

See also Alcohol motors

Alcohol engines. See Alcohol motors**Alcohol heaters**

Tests of alcohol heater car. Ry Age 55:53-4 Jl 11 '13; Same. Ry Age (Mech ed) 87:441-2 Ag '13

Alcohol motors

Alcohol vs. gasoline engines. Power 37:18-9 Ja 7 '13

Algae

Algae in water. B. S. Hanson. Power 38:309-10 Ag 26 '13

Alkali soils

Concrete in alkali soils. Concrete Cem 2: 291-2 Je '13

Alkalies

Alkali action on concrete; investigations by the United States reclamation service. J. Y. Jewett. Eng M 44:267-9 N '12
Billerie alkali-chlorine cells. A. J. Allmand. II Met & Chem Eng 11:19-21 Ja '13
Production of caustic alkali and bleach. D. J. Allmand. II Sci Am S 76:22-3 Jl 12 '13

See also Ammonia

Allgemeine deutsche bergmannstag

12th convention, Breslau, Sept., 1913. O. H. Hahn. II Eng & Min J 96:779-82 O 25 '13

Allis-Chalmers manufacturing company

Opposition to granting charter to Allis-Chalmers mfg. co. to do business in Wisconsin. Iron Tr R 52:721 Mr 27 '13

Allotropy

Critical ranges A2 and A3 of pure iron. G. K. Burgess and J. J. Crowe. II diag Am Inst Min E Bul 82:2337-91 O '13; Discussion. 84: 2870-89 D '13

Staling of bread explained in the light of physical chemistry. R. Lorenz. II Sci Am S 76: 268-9 O 25 '13

Alloys

Alloys suitable for instrument work. W. Rosenhain. Sci Am S 75:82-3, 98 F 8, 15 '13

Calculating weight per cubic inch of alloys. W. L. Tryon. Am Mach 38:873 My 22 '13

Micrometry as applied to alloys. Met & Chem Eng 11:619-21 N '13

Misuse and failure of metals and alloys. T. V. Hughes. Sci Am 108:174 F 22 '13

Nomenclature of the non-ferrous alloys. C. P. Karr. Foundry 41:184-7 N '13; Same. Metal Ind n s 11:517-21 D '13

Pyrophoric alloy industry. G. Martin. Sci Am S 76:325 N 22 '13

See also Aluminum alloys; Brass; Bronze; Copper alloys; Iron alloys; Metallurgy; Metallurgy; Pewter; Solder and soldering

Alphabets

Gothic capital letters. W. Welch. II Inland Ptr 51:216-21 My '13

See also Hieroglyphics; Lettering

Alps

Lötschberg or Bernese Alpine railway. A. Gradenwitz. II Sci Am 108:452-3 My 17 '13

Alternate-stop plan in Cleveland. Elec Ry J 41:141 Ja 25 '13

Alternators. *See* Dynamos

Altitudes

Measuring the height of an aeroplane. Sci Am S 75:295 My 10 '13

Alum

Use of alum in connection with slow sand filtration at Washington, D. C. W. F. Wells. Eng N 70:248-9 Ag 7 '13

Alumina

Alumina from clay by the fluoride process. D. H. Childs. Met & Chem Eng 11:231 My '13

Production and uses of alumina; four papers by J. W. Richards, S. A. Tucker, A. H. Cowles, and L. E. Saunders. Met & Chem Eng 11:137-43 Mr '13

Solubility of alumina in a bath of fused fluorides. A. H. Cowles. Met & Chem Eng 11:177-8 Ap '13

See also Bauxite; Aluminum

Aluminium. *See* Aluminum

Aluminotypes

Aluminotypes. G. E. Dunton. Inland Ptr 50: 879-80 Mr '13

Aluminum

Aluminum as flux. R. Grimshaw. Metal Ind n s 11:425 O '13

Aluminum-cell lightning arrester. J. A. Randolph. diag Power 38:362-4 S 9 '13

Aluminum in 1912. Eng & Min J 95:116 Ja 11 '13

Aluminum precipitation at Deloro, Ontario. S. F. Kirkpatrick. diag Eng & Min J 95: 1277-8 Je 28 '13

Aluminum precipitation at Nipissing mill, Cobalt, Ont. E. M. Hamilton. plan Eng & Min J 95:935-9 My 10 '13

Aluminum production. E. F. Roeber. Elec W 61:21 Ja 4 '13

Casting aluminum. Foundry 41:226 Je '13

Condition of aluminum industry. Metal Ind n s 11:8-9 Ja '13

Corrosion of aluminum. G. H. Bailey. Metal Ind n s 11:204-5, 260-1 My-Je '13

Explosion during aluminum granulation. Eng & Min J 96:911-5 N 15 '13

How to melt aluminum turnings and borings. Foundry 41:119-20 Mr '13

Improving the quality of aluminium. Sci Am S 76:53 Jl 26 '13

Machining of aluminum and white metals. K. Deimhardt. Mach 19:370 Ag '13

Manufacture of aluminum in France. Eng & Min J 96:1010 N 29 '13; Same. Met & Chem Eng 11:632 N '13

Modern aluminum and brass foundry. II plan Iron Age 92:784-6 O 9 '13

Nitrogen in aluminum. Foundry 41:165-6 Ap '13

Overland company's aluminum foundry. II Automobile 29:459-61 S 11 '13

Pouring aluminum at a low heat. Foundry 41: 117-8 Mr '13

Production of aluminium. Sci Am S 76:35 Jl 19 '13

Recent applications of metallic aluminum. Metal Ind n s 11:347 Ag '13

Tariff hearings on schedules B and C. Elec W 61:339 F 15 '13

Use of aluminum for kitchen and eating utensils. Sci Am S 75:64 Ja 25 '13

What Congress thinks of the aluminum tariff. Foundry 41:249 Je '13

Aluminum alloys

Alloying aluminum with the rarer metals. C. H. Ivins. Foundry 41:321-2 Ag '13; Same. Metal Ind n s 11:340-1 Ag '13; Same cond. Eng M 45:878-80 S '13

Aluminum casting practice. Automobile 28: 973 My 8 '13

Influence of pouring temperature on aluminum alloys. H. W. Gillett. Metal Ind n s 11: 167-9 Ap '13

See also McAdamite; Magnalium

Aluminum co. of America

Aluminum company defended by secretary Oliver. Iron Tr R 53:485 S 11 '13

Aluminum nitride

Aluminum nitride. Met & Chem Eng 11:281 My '13

Aluminum silicate. See Pyrophyllite**Alundum**

Carborundum and alundum. S. A. Cochell. Metal Ind n s 11:249-50 Je '13

Amalgamated copper company

Annual report for 1912. Eng & Min J 95: 1013 My 17 '13

Amalgams

Mexican method of retorting amalgam. A. M. Merton. diag Eng & Min J 96:263-4 Ag 9 '13

See also Alloys

Ambrose channel

Ambrose channel as measured by the Panama canal. Sci Am 108:242-3 Mr 15 '13

Ambulances

Street car ambulance. Sci Am 108:316 Ap 5 '13

American association for the advancement of science

Cleveland meeting, 1912. W: H. Hale. Sci Am S 75:34 Ja 18 '13

Sixty-fourth annual meeting, 1912. Elec R & W Elec'n 62:103-5 Ja 11 '13

American association of public accountants

Annual meeting, Boston, September, 1913. J Account 16:312-8 O '13

President's address at annual meeting, Boston, Sept. 15-19, 1913. R. H. Montgomery. J Account 16:265-7 O '13

Semi-annual meeting of the Board of trustees, N. Y., Ap. 14, 1913. J Account 15: 365-9 My '13

American association of railroad superintendents

21st annual convention, Chicago, Aug. 1913. Ry Age 55:374-7 Ag 29 '13

American boiler manufacturers' association

Proceedings of 25th annual meeting. Cleveland, O., Sept. 1-4, 1913. Iron Age 92:591-2 S 11 '13

American can company

Government brings suit. Iron Tr R 53:1040 D 4 '13

Report for 1912. Iron Age 91:428 F 13 '13

American conference of teachers of journalism

Third conference, 1912. Inland Ptr 50:571 Ja '13

American electric railway accountants' association

Papers at final session of Atlantic City convention, Oct., 1913. Elec Ry J 42:893-9 O 18 '13

Proceedings at Atlantic City convention, Oct. 17. Elec Ry J 42:900-1 O 18 '13

Report of meeting, Tuesday, Oct. 14, 1913, at Atlantic City. Elec Ry J 42:761-3 O 15 '13

American electric railway association

Address of President Harries to the American association. Elec Ry J 42:756-9 O 15 '13

Annual conventions of the Am. electric railway assn. and its allied and affiliated associations, Atlantic City, Oct., 1913. Elec W 62: 779-80 O 18 '13

Committees for 1914. Elec Ry J 42:1247-9 D 13 '13

Conference of public policy committees of National Elec. Light Assn. and Am. Elec. Ry. Assn. Elec W 61:384 F 22 '13

Co-operation with National Elec. Light Assn. Elec W 61:381-2 F 22 '13

Letter to Congress by committee on mail compensation. Elec Ry J 42:1337-8 D 27 '13

Midyear banquet, 1913. Elec Ry J 41:206-8 F 1 '13

Mid-year conference, 1913. Eng N 69:281-2 F 6 '13

Opening session at Atlantic City, Oct. 14, 1913. Elec Ry J 42:760-1 O 15 '13

Papers at the New York convention, 1913. Elec Ry J 41:1148-58 Je 28 '13

Problems of the midyear meeting. Elec Ry J 41:180-1 F 1 '13

Proceedings of 4th annual midyear conference, 1913. Elec Ry J 41:184-96 F 1 '13

Report of session, Oct. 16, 1913. Elec Ry J 42: 844-5 O 17 '13

Reports of Committee meetings of the mid-year meeting, 1913. Elec Ry J 41:197-205 F 1 '13

32d annual convention at Atlantic City, Oct., 1913. Eng N 70:837-40 O 23 '13

American electric railway claims association

Report of the closing session, Oct. 15, 1913. Elec Ry J 42:828 O 16 '13

American electric railway engineering association

Closing session, Oct. 17, with Report of the committee on equipment. Elec Ry J 42:889-92 O 18 '13

American electric railway transportation & traffic association

Meeting of executive committee, New York, Dec. 12, 1913. Elec Ry J 42:1294 D 20 '13

Report of session Oct. 16, 1913 at Atlantic City. Elec Ry J 42:842-4 O 17 '13

American electrochemical society

23d general meeting, Atlantic City, April, 1913. Met & Chem Eng 11:178 Ap '13; Elec W 61:763-5 Ap 12 '13

23d general meeting, Atlantic City, April, 1913; with abstracts of papers. Met & Chem Eng 11:277-86 My '13

24th general meeting, Denver, Colo., Sept., 1913. Elec W 62:573-4 S 20 '13

24th general meeting, Denver, Colo., Sept., 1913. Eng & Min J 96:551-2 S 20 '13

24th general meeting, Denver, Boulder and Golden, Colo., Sept., 1913; abstracts of papers. Met & Chem Eng 11:561-91 O '13

American foundrymen's association

Chicago convention, Oct., 1913; report. Metal Ind n s 11:457-62 N '13

18th annual convention, Chicago, Oct., 1913. Eng N 70:827-8 O 23 '13

18th annual convention, Chicago, Oct., 1913. Met & Chem Eng 11:608-10 N '13

Foundrymen discuss many problems at Chicago. Iron Tr R 53:723-8, 755-6 O 23 '13

Meeting at Chicago, Oct., 1913. Iron Age 92: 909-12 O 23 '13

Opening session of the Chicago convention, 1913. Iron Age 92:880-1 O 16 '13

Proceedings of the annual convention at Chicago, Oct., 1913. Foundry 41:461-8 N '13

Programs of the conventions at Chicago, 1913, of the allied associations and details of the exhibition of foundry supplies and equipment. Iron Age Foundry 41:391-9 O '13

American hardware manufacturers' association

Meeting at Atlantic City. Iron Tr R 53:857-8 N 6 '13

American institute of architects

46th annual convention, 1912. Arch Rec 33: 180-2 F '13

American Institute of chemical engineers

Proposed code of ethics for chemical engineers. Eng N 69:159 Ja 23 '13

5th semi-annual meeting, Boston, June, 1913. Iron Age Met & Chem Eng 11:430-2 Ag '13

5th semi-annual meeting, Boston, June 25-28, 1913. Met & Chem Eng 11:310 Je '13

American institute of consulting engineers

Status of engineering profession; papers before Am. inst. of consulting engineers, 1912. 1.; B. Stillwell; S. Whinery. Eng N 69:115-8 Ja 23 '13; Same abr. Eng Rec 67:118-20 F 1 '13

American institute of electrical engineers

Institute as defendant. C. T. Hutchinson. Elec W 61:995-6 My 10 '13

American institute of electrical engineers—Cont.
Lawsuit against the A. I. E. Elec W 61: 864-5 Ap 26 '13

Midwinter convention, New York, Feb., 1913. Elec W 61:128-9, 438-9, 515-22 Ja 18, Mr 1-8 '13; Eng N 69:480-2 Mr 6 '13; Elec Ry J 41:431-2 Mr 8 '13

Model for engineering conventions. Eng N 69:524 Mr 13 '13

Pacific coast convention, Vancouver, B. C., Sept., 1913. Elec W 62:629-30 S 27 '13

Papers and discussions at 30th annual convention, Cooperstown, N. Y., June, 1913. Elec W 62:15-21, 81-6 Ji 5-12 '13

Philadelphia meeting, Oct., 1913. Elec W 62: 780-3 O 18 '13

Pittsburgh meeting, April 18-19, 1913. Elec W 61:870-2, 922-3 Ap 26-May 3 '13

Report of the board of directors for fiscal year ending April 30, 1913. Am Inst E E Pro 32:1495-1514 Je '13; Discussion. 32:2254-65 D '13

Some aspects of institute affairs: president's address. R. D. Mershon. Am Inst E E Pro 32:1669-78 Ag '13

30th annual convention, Cooperstown, N. Y., June, 1913. Elec W 61:1393-9; 62:8-9 Je 23-Ji 5 '13

30th annual convention, Cooperstown, N. Y., June, 1913. Eng N 70:77-80 Ji 10 '13

See also Mershon, R. D.

American institute of mechanical engineers

Board of directors: portraits. Eng & Min J 95:1187-9 Je 14 '13

American institute of metals

Annual convention, Chicago, Oct., 1913. Met & Chem Eng 11:608-10 N '13

Annual meeting, Chicago, Oct., 1913: abstract of papers. Iron Age 92:912-4 O 23 '13

Annual meeting, Chicago, Oct., 1913: proceedings. Foundry 41:479-83 N '13

American institute of mining engineers

Annual meeting, New York, Feb., 1913. Eng & Min J 95:439-40 F 22 '13

Annual meeting, New York, Feb., 1913. Met & Chem Eng 11:149-57 Mr '13

Annual meeting of the New York section, N. Y., 1913. Eng & Min J 95:1009-10 My 17 '13

Constitution and by-laws. Eng & Min J 95: 196 Ja 18 '13

Dr. Raymond and the Am. Inst. M. E. Eng & Min J 95:886-7 My 3 '13

Fall meeting of the Iron and steel section, Oct., 1913. Eng & Min J 96:793-4 O 25 '13

Mining engineers discuss iron and steel topics. Iron Tr R 53:767-2 O 23 '13

104th meeting, New York, 1913. Colliery 33: 499 Ap '13

105th meeting, Great Falls, Anaconda and Butte, Aug., 1913. Eng & Min J 96:409-10 Ag 30 '13

105th meeting, Great Falls, Anaconda and Butte, Aug., 1913; with extracts of papers. Met & Chem Eng 11:521-31 S '13

Plans for a union of the Mining and metallurgical Soc. of Am. and the Am. Inst. of M. E. Eng & Min J 95:382-3 F 15 '13

Program for annual meeting, Feb., 1913. Iron Age 91:389 F 6 '13

Proposed union of the Mining and metallurgical society of America and the institute. Eng & Min J 96:466 S 6 '13

See also Kemp, J. F.

American iron and steel association

End of an era. J. M. Swank. Iron Tr R 52: 172 Ja 9 '13

American iron and steel institute

Comments on business conditions accompany technical papers at Chicago meeting, Oct., 1913. Iron Age 92:956-60 O 30 '13

4th annual meeting, New York, May 23, 1913. Eng & Min J 95:1115 My 31 '13; Iron Age 91:1294-8 My 29 '13; Iron Tr R 52:1252-5 My 29 '13

5th general meeting at Chicago, Oct. 24-25. Iron Tr R 53:809-10 O 30 '13

American iron, steel and heavy hardware association

4th annual convention, Buffalo, N. Y., June, 1913. Iron Age 91:1490-2 Je 19 '13

American mine safety association

First-aid and rescue contest, Pittsburgh, September 22-21. W: Z. Price. il Colliery 34: 207-10 N '13

American mining congress

15th annual meeting, Spokane, 1913. il Colliery 33:377-8 F '13

Proceedings at 16th annual session, Philadelphia, Oct. 20 to 25, 1913. Colliery 34: 230-9 D '13

16th annual session, Philadelphia, Oct., 1913. Eng & Min J 96:841-7 N 1 '13

American museum of safety

Annual award of medals, 1913. Ry & Eng R 53:50 Ja 18 '13

Annual meeting, 1913. Elec W 61:231 F 1 '13

Scientific American gold medal awarded to pulmotor. Colliery 33:484-5 Ap '13

American order of steam engineers

27th annual convention, Philadelphia, 1913. por Power 37:878-9 Je 17 '13

American public health association

Abstracts of some papers and committee reports presented before the laboratory and sanitary engineering sections of 11st annual meeting at Colorado Springs. Eng Rec 68: 293-7 S 13 '13

Committee reports on sewerage and sewage disposal and on river cleaning. Eng N 70: 759-61 O 16 '13

41st annual meeting, Colorado Springs, 1913. Eng Rec 68:sup 47 S 20 '13

Papers at annual meeting, Colorado Springs, Sept., 1913. Eng N 70:570-3 S 18 '13

American railway association

Fall session, Chicago, Nov. 19, 1913. Ry & Eng R 53:1076-7 N 22 '13

Spring meeting, New York, May 21, 1913. Ry & Eng R 53:489-90 My 24 '13

Spring session, New York, May, 1913: committee reports. Ry Age 54:1150-1 My 23 '13

American railway bridge and building association

Abstracts of reports of committees and discussions at 23d annual convention, Montreal, 1913. Ry Age 55:784-93 O 24 '13

Committee appointments for 1913. Ry & Eng R 53:141 F 15 '13

23d annual convention, Montreal, Can., Oct., 1913. Eng N 70:889-91 O 30 '13

23d annual convention, Montreal, Oct., 1913. Ry & Eng R 53:922-4 O 25 '13

American railway engineering association

Exhibits at annual convention, Chicago, 1913. Elec Ry J 41:553-4 Mr 22 '13

14th annual convention, Chicago, 1913. Elec Ry J 41:543-8 Mr 22 '13; Ry & Eng R 53: 274-85 Mr 22 '13; Eng N 69: 640-4 Mr 27 '13; Eng Rec 67:sup 40 Mr 29 '13

Proceedings and registration of the 14th annual convention, Chicago, Mr., 1913. Ry Age 54: 571-99, 610-41, 701-32 Mr 19-21 '13

Recommendations adopted at annual convention, 1913. Eng Rec 67:346-7 Mr 29 '13

Review of work as reported to annual convention, 1913. Eng Rec 67:321-4 Mr 22 '13

American railway master mechanics' association

46th annual convention, Atlantic City, N. J., June, 1913. Elec Ry J 41:1065-6 Je 14 '13

46th annual convention, Atlantic City, June, 1913. Eng N 70:42-6 Ji 3 '13

46th annual convention, Atlantic City, N. J., June, 1913. Ry & Eng R 53:555-7, 601-7 Je 14-21 '13

46th annual convention, Atlantic City, June, 1913: program. Ry & Eng R 53:517 Je 7 '13

Subjects presented at the conventions, 1903 to 1913 inclusive. Ry & Eng R 53:9 Ja 4 '13

American railway safety association

Convention at Chicago, Sept., 1913. Ry Age 55:561-5 S 26 '13

Railway and industrial safety. Ry & Eng R 53:907-8 S 27 '13

American railway tool foremen's association

5th annual convention, Chicago, July, 1913. Elec Ry J 42:147-8 Ji 26 '13

American railway tool foremen's assn.—Cont.

- 5th annual convention, Chicago, July, 1913.
Ry Age 55:158-9, 178 JI 25-Ag 1 '13
5th annual convention, Chicago, July, 1913.
Ry & Eng R 53:712-4 JI 26 '13
Papers at 5th annual convention, Chicago,
July, 1913. Ry Age (Mech ed) 87:131-6 Ag
'13

American road builders' association

- Abstracts of some papers presented at the
annual convention in Philadelphia, Dec.
1913. Eng Rec 68:672-4, 700-2 D 13-20 '13
Proceedings of annual meeting at Philadel-
phia. Eng Rec 68:sup 18, sup 60 D 13-20 '13
10th annual convention, Philadelphia, Dec.,
1913. Eng N 70:1256-7 D 18 '13

American road congress

- Abstracts of papers at the 3d annual conven-
tion in Detroit, Sept. 29 to Oct. 4. Eng Rec
68: 377-81, 405-10 O 4-11 '13
Resolutions adopted at Detroit, Oct., 1913.
Eng Rec 68:401 O 11 '13
Some papers at 3d annual congress, Detroit,
Mich. Eng N 70:728-32 O 9 '13
3d annual congress, Detroit, Mich., 1913.
Eng N 70:726-7 O 9 '13

American smelting & refining company

- 14th annual report for year ended Dec. 31,
1912. Eng & Min J 95:672 Mr 29 '13
Government's attitude toward Am. smelting
& refining co. Eng & Min J 16:1203-4 D 27
'13

American society for testing materials

- Improving the character of technical papers.
Eng Rec 67:249-50 Mr 1 '13
Proceedings of 16th annual meeting, Atlantic
City, Iron Tr R 53:27-9; 34-9 JI 3 '13
Program of technical reports and papers to
be given at annual meeting, Atlantic City,
June, 1913. Ry & Eng R 53:533 Je 7 '13
Revision of the specifications for steel. Iron
Age 122:8-9 JI 3 '13
16th annual meeting at Atlantic City, June,
1913. Ry Age 54:1609; 55: 15-6 Je 27-JI 4 '13
16th annual meeting, Atlantic City, June,
1913. Concrete Cem 3:12-4 JI '13
16th annual meeting, Atlantic City, June,
1913. Elec Ry J 42:32 JI 5 '13
16th annual meeting, Atlantic City, June,
1913; with papers. Eng N 70:37-42, 74-7 JI
3-10 '13
16th annual meeting: presidential address by
Robert W. Hunt on application of speci-
fications. Iron Age 91:1569-71 Je 26 '13

American society of agricultural engineers

- Sixth annual convention, 1912. Eng N 69:44
Ja 2 '13

American society of civil engineers

- Annual convention, Ottawa, June, 1913. Eng
N 69:1344-6 Je 26 '13
Annual meetings, 1913. Eng N 69:182-4 Ja 23
'13
Value of membership. Eng N 70:771 O 16 '13
See also Swain, G. F.

American society of engineer draftsmen

- Fraternal American engineering society. W.
M. Smyth. Eng N 70:772-3 O 16 '13

American society of heating and ventilating engineers

- 19th annual meeting, New York, Jan., 1913.
Dom Eng 62:133-9 F 1 '13
19th annual meeting, New York, 1913. Heat
& Ven 10:27-35 F '13
19th annual meeting, New York, 1913. Power
37:170-1 F 4 '13
19th annual meeting, 1913. Elec W 61:232 F
1 '13; Eng N 69:251-2 F 6 '13
19th semi-annual meeting, Buffalo, July, 1913.
Dom Eng 61:103-6 JI 26 '13
19th semi-annual meeting, Buffalo, July, 1913.
Power 38:180-1 JI 29 '13
Proceedings of meeting, Buffalo, July, 1913.
Heat & Ven 10:28-37 Ag '13

American society of inspectors of plumbing and sanitary engineers

- 8th annual convention, Louisville, Ky., May,
1913. Dom Eng 63:248-56 My 31 '13

American society of mechanical engineers

- American mechanical engineers in Germany.
Iron Tr R 53:30-2 JI 3 '13

Annual reports of standing committees. Am
Soc M E J 35:7-19 D '13

Code of ethics for engineers. Iron Tr R 52:
415-6 F 13 '13

From Cologne to Munich with American en-
gineers. Il Iron Tr R 53:131-4 JI 17 '13

Germany's great industrial plants visited. Il
Iron Tr R 53:77-80 JI 10 '13

Mechanical engineers' German meeting. F.
R. Low. Il Power 38:212-4 Ag 5 '13

Mechanical engineers in Germany. Iron Age
92:72-3 JI 10 '13

Meeting with Verein deutscher ingenieure,
Leipzig, June, 1913. Eng N 70:121-4 JI 17 '13

Spring meeting, Baltimore, May, 1913. Eng N
69:1148-50 My 29 '13; Iron Age 91:1292-3
My 29 '13; Iron Tr R 52:1235-8 My 29 '13;

Power 37:800-1 Je 3 '13

33d annual meeting, New York, Dec. 1912.
Am Soc M E J 35:8-27 Ja '13

33d annual meeting, New York, 1912. Mach
19:412 Ja '13

34th annual meeting, New York, 1913. Iron
Age 92:1339-43 D 11 '13

34th annual meeting, New York, 1913. Iron
Tr R 53:1081-7 D 11 '13

34th annual meeting, New York, 1913. Eng N
70:1200-2 D 11 '13

34th annual meeting, New York, Dec., 1913.
Power 38:870-2 D 16 '13

34th annual meeting at New York city, Dec.,
1913. Elec W 62:1149-51 D 6 '13

Trip through Germany. Am Soc M E J 35:
3-9 Ag '13

See also Goss, W. F. M.

American society of municipal improvements

- Convention at Wilmington, Oct. 6-9, 1913.
Munic Eng 45:477-8 N '13
20th annual convention, Wilmington, Del.,
Oct., 1913. Eng Rec 68:sup 52 O 11 '13
20th annual convention at Wilmington, Del.,
Oct. 7 to 10. Eng N 70:776-8 O 16 '13

American society of refrigerating engineers

- 9th annual meeting, New York, Dec., 1913.
Power 38:837-8 D 9 '13

American steel foundries

- Annual report for 1912. Iron Age 91:651 Mr
13 '13

American supply and machinery manufacturers association

- Indianapolis meeting, April, 1913. Iron Age
91:950-1, 971-3 Ap 17 '13

American telephone & telegraph company

- Annual report for 1912. Elec W 61:606-7 Mr
22 '13
Interstate commission investigation of tele-
phone company. Elec W 61:186 Ja 25 '13
Settlement of American telephone and tele-
graph suit. Elec W 62:1303-4 D 27 '13

American waterworks association

- 33d annual convention, Minneapolis, June,
1913. Eng N 70:42-6 JI 3 '13
33d annual convention, Minneapolis, June,
1913. Eng Rec 68:sup 40-1 JI 5 '13

American wood preservers association

- Annual convention, 1913. Eng N 69:226-7 Ja
30 '13

Concluding sessions, 1913. Elec Ry J 41:220-1
F 1 '13

9th annual convention, 1913. Ry & Eng R
53:78-81 Ja 25 '13

9th annual convention, 1913; with abstracts
of four papers by H. F. Weiss, J. H. Wat-
terman, H. Von Schrenk, and H. G. Davis.
Elec Ry J 41:150-5 Ja 25 '13

Ninth annual meeting, 1913. Elec W 61:284-
5 F 8 '13

Report of 9th annual convention, 1913. Eng
Rec 67:sup 40-1 F 1 '13

America's cup. See Yacht racing**Amic acids**

Acid amides in the soil. S: L. Jodidi. J Fr
Inst 175:245-58 Mr '13

Ammeters

Electricity in mines. H. S. Webb. Colliery
34:247-8 N '13

Keystone ammeter and voltmeter. Il Met &
Chem Eng 11:355 Je '13

See also Electric meters

Ammonia

- Ammonia condensers. F. Ophüls. *il* Power 38: 335-7, 474-6 S 2, 30 '13
- Ammonia from aluminum nitride. Serpek process. Eng & Min J 95:602 Mr 22 '13
- Ammonia in brine. M. B. Smith. Power 38: 337-8 S 2 '13
- Capacity of ammonia compressors. R. L. Mossman. Power 38:200-1 Ag 5 '13
- Haber synthetic ammonia process. plans Met & Chem Eng 11:173-4, 211-4 Ap '13
- Mollier diagram for ammonia. Power 38: 398-400 S 16 '13
- Ostwald process for making nitric acid from ammonia. plans Met & Chem Eng 11:438-42 Ag '13; Same. Sci Am S 76:162-3 S 13 '13
- Ostwald process for making nitric acid from ammonia and the production of ammonia from calcium cyanamid. Met & Chem Eng 11:476 S '13
- Production of synthetic ammonia; the reduction of atmospheric nitrogen by catalysis. F. Haber and R. Le Rossignol. *il* Sci Am S 76:58-9 Jl 26 '13
- Properties of saturated ammonia vapor. tables Power 38:59-62 Jl 8 '13
- Properties of saturated and superheated ammonia vapor. G. A. Goodenough and W. E. Mosher. *Ill U Eng Exp Sta Bul* 66:1-94 '13
- Properties of saturated and superheated ammonia. W. E. Mosher. Am Soc M E J 35: 25-68 Ja '13
- Removing ammonia charge from compression system. Power 38:476 S 30 '13
- Weighing ammonia to determine refrigerating capacity. F. Ophüls. plan Power 37: 190-2 F 11 '13
- See also* Coke-oven gas; Gas manufacture

Ammonium sulphate

- Ammonium sulphate from ammonia and sulphur dioxide. W. Feld. *il* Sci Am S 75: 217-8 Ap 5 '13
- Ammonium sulphate from coke oven gas. Iron Age 92:403 Ag 21 '13
- Cleaning coke-oven gas. S. F. Walker. *il* plan Colliery 33:349-51 F '13

Anabiosis

- Between life and death. Sci Am 109:362 N 8 '13

Anaconda copper mining co., Butte, Mont.

- Compressed air system. E. V. Nordberg. *il* Am Inst Min E Bul 81:2225-87 S '13
- Mining cost accounts. H. T. Van Ellis. Am Inst Min E Bul 78:1047-54 Je '13
- Plants, methods etc. of the Anaconda copper mining co. *il* Am Inst Min E Bul 80:1443-2197 Ag '13
- Report for 1912. Eng & Min J 95:965-7 My 10 '13

- Analysis (chemistry).** *See* Assaying; also names of substances analyzed, e. g. Coal—Analysis; Gases—Analysis; Steel—Analysis

- Analysis, Spectrum.** *See* Spectrum analysis

Anemometer

- Method for calibrating anemometers. E. F. Learned. plan Eng N 69:843-4 Ap 24 '13

- Aneroid barometer.** *See* Barometer

Anesthetics

- Anesthetizing machine of Prof. Dubois. J. Boyer. *il* Sci Am 108:468 My 24 '13

Angle irons

- Deflection of angle irons. W. L. Cathcart. Mach 19:636 Ap '13

Animal food

- Animals as converters of plant nutriments into human foodstuffs. Sci Am S 75:219 Ap 5 '13

Animal intelligence

- Don, the talking dog. L. K. Hirshberg. Sci Am 108:502 My 31 '13

Animal training

- Thinking horses: a problem in animal psychology, or in stage trickery? *il* Sci Am 108: 454 My 17 '13

Animals

- Action of ultra-violet light on animal organisms. Sci Am 109:208 S 13 '13

Animals, Experiments on

- Detecting poisonous gases by their action upon small animals. G. A. Burrell and F. M. Seibert. *il* Sci Am S 76:385, 389-90 D 29 '13
- Treatment of bacteriological infections by chemical means. F. Blumenthal. Sci Am S 75:355 Je 7 '13

- Animals, Marine.** *See* Marine zoology

Annealing

- Annealing high-speed steel. Mach 19:431 F '13
- Annealing muffles. C. H. Wall. plans Metal Ind n s 11:162-5 Ap '13
- Annealing of hoisting chains. Iron Age 91: 946-7 Ap 17 '13
- Annealing of steel castings. E. F. Cone. *il* Iron Age 91:1049-54 My 1 '13
- Annealing steel castings. Foundry 41:96 Mr '13
- Annealing steel in a magnetic field. Elec W 61:1018 My 17 '13
- Annealing steel in alternating magnetic field. Sci Am S 75:311 My 17 '13
- Influence of divorcing annealing on the mechanical properties of low-carbon steel. H. M. Howe and A. G. Levy. *il* Am Inst Min E Bul 73:1-35 Ja '13

Ansonia, Connecticut**Bridges**

- Concrete highway bridge: *il* plans Eng Rec 67:219-20 F 22 '13

Antarctic regions

- Achievements and lessons of the Scott expedition. Sci Am 108:212 Mr 1 '13
- Scott expedition and its tragic end. map *il* Sci Am 108:175-8 F 22 '13
- To the south pole with the cinematograph. *il* Sci Am 108:560-1 Je 21 '13

- Antenna resistance.** *See* Wireless telegraph

Anthracite coal

- Chemical interpolation of anthracite. M. S. Hachita. Colliery 33:373-5 F '13
- Short Mountain breaker. W. Z. Price. *il* plan Colliery 34:267-70 D '13
- Working anthracite culm piles. *il* Colliery 33:569-71 My '13

- See also* Coal mines and mining

Antimony

- Antimony in brass mixtures. C. Vickers. Foundry 41:322-3 Ag '13
- Antimony in 1912. Eng & Min J 95:95 Ja 11 '13
- Determination of arsenic and antimony in converter and electrolytic copper. E. E. Brownson. Am Inst Min E Bul 80:1484-95 Ag '13

Antiseptics

- Soil sterilization. E. J. Russell. *il* Sci Am S 75:180-1 Mr 22 '13

- See also* Disinfection and disinfectants

Antitoxins

- Bacteriology and your health: serums and vaccines in the diagnosis, treatment and prevention of disease. C. F. Bolduan. *il* Sci Am 108:540-1 Je 14 '13

Apartment houses

- Heating and ventilating apartment house. plans Dom Eng 63:118-26 My 3 '13
- How one express company proposes to compete with the parcels post. Sci Am 109:390 O 18 '13
- Plans and views of the Montana, Park Ave., N. Y. Arch & Bldg 45:414-9 O '13
- Portfolio of current architecture; pictures and plans. Arch Rec 33:68-73 Ja '13
- Recent work by Albert Joseph Bodker. C. M. Price. *il* Arch Rec 33:381-91 My '13

- See also* Tenement houses

Apophorometer

- Description of the apophorometer. plan Met & Chem Eng 11:167 Mr '13

- Apparatus.** *See* Instruments

Appraising

- Uncle Sam's appraisers of merchandise. *il* Sci Am 108:244-5 Mr 15 '13

- See also* Valuation

Apprentices

- Apprentice problem. J. G. Holman. Inland Ptr 50:853-4 Mr '13
- Apprenticeship. Ry Age (Mech ed) 87:417-20 Ag '13
- Apprenticeship on the Illinois Central. Am Eng 87:249-52 My '13
- Development of skilled mechanics. C. J. Morrison. Mach 19:755-6 Je '13
- Making section foremen from clerks. W. S. Wollner. Ry Age 55:1187-8 D 19 '13
- Modern apprenticeship. J. H. Linn. Ry Age 55:1023-4 N 28 '13
- Modern apprenticeship system used by Cincinnati planer co. A. J. Schneider. Mach 19:762-3 Je '13
- Pennsylvania railroad company apprentice schools. J. P. Jackson and J. W. L. Hale. Am Inst E B Pro 32:1433-9 Je '13
- Reports on apprenticeship. Ry Age 55:151-2 H 25 '13
- Santa Fe apprentice instruction. R. T. Peabody. Il Ry Age (Mech ed) 87:311-2 Je '13
- Solution of the apprenticeship problem. F. E. Fladd. Dom Eng 63:101-2 Je 28 '13
- Study your apprentice boys carefully. G. M. Basford. Ry Age 55:7-9 JI 4 '13
- System of apprentice instruction in the Manila bureau of printing. W. E. Stevens. Inland Ptr 50:858-9 Mr '13
- Training apprentices in machine shop work at the R. K. Le Blond machine tool co., Cincinnati. Il Iron Tr R 52:679-82 Mr 20 '13
- Why don't railroads hold the college man? Ry Age (Mech ed) 87:523-4 O '13
- Woods apprentice industrial school. Alliance, Ohio. Mach 20:315 D '13

See also Corporation schools; Industrial education; Schools and shops, Cooperation of

Aquatic animals. *See* Marine zoology

Aqueducts

- Completion of a great engineering work. Sci Am 100:358 N 8 '13
- Construction and completion of the Los Angeles aqueduct. B. A. Heinly. Il Eng M 45:1-17 Ap '13
- Eight-mile concrete conduit at Baker, Ore.; replacing a wooden flume with molded pipes. diag Eng Rec 67: 588-9 My 24 '13
- Monolithic construction of heavily reinforced, 17-foot circular aqueduct. Catskill. H. W. Nelson. Il plan Eng Rec 67:502-5 My 3 '13
- Proposed Shoal Lake or Greater Winnipeg aqueduct. Eng N 70:628-30 S 25 '13
- Steel forms for concrete construction: uses of forms on sewers, aqueducts and tunnels. W. M. Venable. Il Concrete Cem 2:11-4 Ja '13
- Surplus waters of the Los Angeles aqueduct. B. A. Heinly. plan Eng N 69:506-10 Mr 13 '13

See also Catskill aqueduct; Los Angeles aqueduct

Aquitania (steamship)

- Aquitania. Il Sci Am S 75:264-5 Ap 26 '13
- Cunard liner Aquitania. Il Eng M 45:580-2 JI '13
- Launch of the Aquitania. Il Int Marine Eng 18:214-5 My '13
- Power equipment of the Aquitania. Il Power 37:663-5 My 13 '13

Arbitration, Industrial

- Amendment of the Erdman act. Ry & Eng R 53:265 Mr 22 '13
- Arbitration as a factor in the mining industry. Colliery 34:291-6 D '13
- Arbitration of terms of trainmen's service in Detroit. Elec Ry J 42:346-7 Ag 30 '13
- Arbitration of the firemen's controversy. Ry & Eng R 53:158-9, 295-6, 340-1 F 22, Mr 29, Ap 12 '13
- Arbitration of the firemen's wage controversy. Ry Age 54:479-80, 667-8, 762-5, 799-801, 838 Mr 14-Ap 11 '13
- Award in the firemen's wage arbitration. Ry & Eng R 53:382 Ap 26 '13
- Award of arbitrators in case of conductors and trainmen of eastern roads. Ry & Eng R 53:1056-8 N 15 '13
- Award of arbitrators in Chicago wage controversy. Elec Ry J 41:649-50 Ap 5 '13

Award of Buffalo arbitrators in case of International railway. Elec Ry J 42:234 Ag 9 '13

- Boston arbitration hearings. Elec Ry J 42:349, 434, 470, 511, 700-1, 941, 993, 1030, 1066-7 Ag 30, S 13-27, O 11, 25-N 15 '13
- Boston Elevated hours of labor agreement. Elec Ry J 42:1254-5 D 13 '13
- Canadian industrial disputes act. Iron Age 92:655 S 25 '13
- Chicago street railway wage arbitration. Elec Ry J 41:615-6 Ap 5 '13
- Closing argument of the railroads in the trainmen's wage arbitration. Ry & Eng R 53:973 O 18 '13
- Compulsory arbitration. Elec Ry J 41:791 My 3 '13
- Decision of Detroit arbitrators in regard to working conditions and wages. Elec Ry J 42:1028-9 N 8 '13
- Dispute between the Chicago city railway co. and its employees. Elec Ry J 41:749 Ap 26 '13
- Eastern trainmen's wages settled. Ry Age 55:909-13 N 11 '13
- Firemen's arbitration award. Am Eng 87:275-6 My '13; Same, with arbitrator's report. Ry Age 54: 961-2 Ap 25 '13
- Government mediation in railroad labor disputes. S. Low. Elec Ry J 41:212-4 F 1 '13; Same. Ry & Eng R 53:209-10 Mr 8 '13
- Indianapolis arbitration proceedings. Elec Ry J 42:1254, 1302-3 D 13-20 '13
- Indianapolis differences placed before commission. Elec Ry J 42:1149-50 N 29 '13
- Indianapolis employees close their case. Elec Ry J 42:1348 D 27 '13
- Industrial arbitration. C. Murphy. Elec Ry J 42:1240-1 D 13 '13
- Industrial mediation laws. M. E. Marks. Elec Ry J 41:214 F '13; Same. Ry & Eng R 53:117 F 8 '13
- Legislation to avoid railway strikes. Eng N 69:733-4 Ap 10 '13
- Managers' and firemen's briefs. Ry Age 54:881-2 Ap 13 '13
- Needed amendment of the Erdman law. Elec Ry J 41:318-9 F 22 '13
- Proposed arbitration bill. Ry Age 54:1328-30 Je 13 '13
- Railway arbitration. Eng M 44:597-8 Ja '13
- Suggestions for legislation for arbitration of labor disputes. Ry Age 54:172-3 Mr 14 '13
- Terms of settlement of Cincinnati strike. Elec Ry J 41:939 My 24 '13

See also Labor and capital; Labor disputes; Strikes

Arbors (machinery)

- Arbors for second-operation work. A. A. Dowd. diag Mach 20:115-20 O '13
- Knock-off arbors for threaded work. A. A. Dowd. diag Mach 19:935-9 Ag '13
- Work holding arbors and methods for turning operation. Il Mach 20:81-7 O '13

Arc lamps. *See* Electric lamps, Arc

Arch. *See* Arches

Archeology

- Metals in antiquity. Sci Am S 75:16 Ja 4 '13

See also Monuments; Temples

Arches

- Arches of Mexico: relics of early Spanish engineering. M. W. Hudson. Il Sci Am 103:28 JI 12 '13
- Artistic stone arch at Pelham, N. Y. H. B. Seaman. Il plan Munic Eng 44:102-5 F '13
- Convenient method for drawing five-centered arches. J. J. Klaber. Sci Am S 75:335 My 24 '13
- Graphical method of dividing neutral axis in concrete arch design. T. A. Smith. Eng N 70:611 S 25 '13
- History of the arch. W. F. Albright. Sci Am 108:559 Je 21 '13
- History of the arch. C. Hammond. Sci Am 108:471 My 24 '13
- Method of designing arches. Kingshighway viaduct, St. Louis. Eng Rec 67:136-7 F 1 '13
- See also* Bridges, Arched; Building; Culverts; Vaulting

Architects

Do architects read? a group of interviews. S: Ilowe. Arch Rec 33:82-90 Ja '13

Architects, American institute of. See American institute of architects

Architectural acoustics. See Acoustics, Architectural

Architectural drawing

Three dimensions in architectural drawing: the lesson of the Italian masters. A. G. Byne. il Arch Rec 34:193-201 S '13

Architectural education. See Architecture—Study and teaching

Architectural league of New York

28th annual exhibition. il Arch Rec 33:217-30 Mr '13

Architectural libraries

Design of the Avery architectural library, Columbia university. C. M. Price. il plans Arch Rec 33:533-49 Je '13

Notes on the collection of the Avery architectural library, Columbia university. G: L. Hunter. il Arch Rec 33:550-66 Je '13

Architecture

Architect and builder not synonymous. Arch & Bldg 45:127-8 Ap '13

Engineering standards and architectural requirements. Eng Rec 68:114 Ag 2 '13

Interpretation of architecture. Arch & Bldg 45:41-2 F '13

Lessons of the Chicago world's fair. D. H. Burnham. il Arch Rec 33:34-44 Ja '13

Outlook and inlook architectural. J: G. Howard. il Arch Rec 34:531-42 D '13

Portfolio of current architecture: pictures and plans. Arch Rec 33:66-81 Ja '13

Textile origins in architecture. C: De Kay. il Arch Rec 34:458-66 N '13 (to be cont)

See also Acoustics, Architectural; Arches; Armories; Bank buildings; Baths, Public; Bridges; Building; Building materials; Cathedrals; Ceilings; Chimneys; Church architecture; Columns; Concrete construction; Concrete houses; Cottages; Department stores; Domes; Doors; Exhibition buildings; Factories; Farm buildings; Fireproof construction; Floors; Foundations; Garages; Grain elevators; Heating; High buildings; Hotels; Library architecture; Machine shops; Masonry; Mills and mill-work; Municipal centers; Office buildings; Orders of architecture; Plumbing; Post office buildings; Range towers; Roofs; Schoolhouses; Steel construction; Strains and stresses; Temples; Theaters; Tombs; Towers; Trusses; Vaulting; Ventilation; Warehouses; Windows; also names of cities, subhead Architecture

Details

Lettering and the architect. W: Heyny. il Arch & Bldg 45:8-10, 62-4, 97-9, 133-5, 187-8, 300-1, 397-8, 435-6, 496-7 Ja-May, Jl, O-D '13

Molding sand cores for floor construction. F: Squires. il Concrete Cem 2:213-8 My '13

See also Doors; Floors; Windows

Exhibitions

Architectural league of New York; 28th annual exhibition. il Arch Rec 33:217-30 Mr '13

Chicago architectural club: notes on 26th annual exhibition, 1913. R. A. Lippincott. il Arch Rec 33:567-73 Je '13

Study and teaching

Director Lord on the teaching of architecture. Arch Rec 33:95-6 Ja '13

England

Bicycle trip through England. W. Schneider. il Arch Rec 33:123-36 F '13

United States

Architectural Philadelphia yesterday and today. C. FitzGibbon. il Arch Rec 34:20-45 Jl '13

Plans for the new buildings of the Massachusetts institute of technology. il plan Eng N 70:1053-5 N 20 '13

Style in American architecture. R. A. Cram. Arch Rec 34:232-9 S '13

Varied work of Willis Polk. C. M. Price. il Arch Rec 34:566-81 D '13

Work of Parker, Thomas and Rice. H. D. Croly; C. M. Price. il Arch Rec 34:96-181 Ag '13

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Architecture, Colonial

Study in local adaptation: a new-old Dutch colonial farm-house in the Catskills. D: E. Tarn. il Arch Rec 34:318-28 O '13

Three types of Georgian architecture. H. D. Eberlein. il Arch Rec 34:56-77 Jl '13

Architecture, Domestic

Anglo-American country-house, designed by Edmund B. Gilchrist. H. D. Eberlein. il Arch Rec 34:351-65 O '13

Architecture and the housing problem. C. M. Price. il Arch Rec 34:240-7 S '13

Building a house of moderate cost. R. C. Spencer, jr. il Arch Rec 31:609-15; 32:37-45, 109-19, 238-49, 431-11; 33:156-62, 350-8 Je-S, N '12, F, Ap '13

Co-operative group planning. D: E. Tarn. il plans Arch Rec 34:467-75 N '13

Country house in California. H. D. Croly. il Arch Rec 34:483-519 D '13

Country estate of Arthur Curtiss James. Arch & Bldg 45:43-51 N '13

Edgerton, a study in the Tudor style: the Frederick F. Brewster residence at New Haven, Conn. R: H. Dana. il Arch Rec 34:273-91 O '13

Palatial country house in Delaware: the A. I. duPont residence, Carrière and Hastings, architects. il Arch Rec 34:337-47 O '13

Personal architecture: house of H. C. Mercer, Doylestown, Pa. W. T. Taylor. il Arch Rec 33:242-54 Mr '13

Practical housing development: evolution of the quadruple house idea. il Arch Rec 34:46-55 Jl '13

Ready-made houses. Sci Am S 75:16 Ja 4 '13

Study in local adaptation: a new-old Dutch colonial farm-house in the Catskills. D: E. Tarn. il Arch Rec 34:318-28 O '13

Suburban development. il Arch Rec 34:348-53 O '13

Three types of Georgian architecture. H. D. Eberlein. il Arch Rec 34:56-77 Jl '13

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Designs and plans

City house to date: the residence of J. W. Herbert. il Arch Rec 33:204-16 Mr '13

Concrete brick veneer and stucco house. J. C. Petersen. plans Concrete Cem 2:121-2 Mr '13

Country house with an idea: the Russell residence at Greenwich, Conn., Frank Eaton Newman, architect. C: M. Price. il Arch Rec 34:292-301 O '13

Evolution of domestic plans. C. E. Schermerhorn. il plans Arch & Bldg 45:221-69 Je '13

Recent work by Albert Joseph Bodker. C: M. Price. il Arch Rec 33:381-423 My '13

Recent work of Howard Shaw. H. D. Croly; C. M. Price. il Arch Rec 33:284-331 Ap '13

Three cottages and a studio: recent work of Arthur T. Remick. A. T. Covell. il Arch Rec 34:306-17 O '13

Workmen's houses in Germany. plans Ind Eng 13:374-6 S '13

Views

Portfolio of current architecture. Arch Rec 33:163-76 F '13

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Architecture, Gothic

Revival of French Gothic architecture: a mausoleum after St. Hubert's chapel. L. R. McCabe. il Arch Rec 34:202-12 S '13

Architecture, Mohammedan

Eastern architecture in the West: Medinah temple in Chicago. J. E. Murphy. il Arch Rec 33:339-49 Ap '13

Arctic exploration

- Arctic exploration and the new Stefánsson expedition. R. E. Peary. map il Sci Am S 75:276 My 3 '13
 Canadian arctic expedition. Sci Am 108:240 Mr 15 '13
 Plans of the Stefánsson expedition. C. Wissler. Sci Am S 75:276-7 My 3 '13
 What have the Russians discovered in the Arctic? Sci Am 109:314 O 25 '13

Area measurement

- Acreage table for figuring railroad right-of-way. Ry Age 54:313 F 21 '13

Arithmetic

- Extracting roots of numbers by inspection. A. J. Lotka. Sci Am 108:354 Ap 19 '13
 Horner method of extracting roots. P. Stafford. Power 37:908 Je 24 '13
 Preparing tables of cubes, etc. J. G. Witton. Sci Am S 75:318 My 17 '13
 Simple method of preparing tables of cubes. A. W. Weedon. Sci Am S 75:287 My 3 '13
See also Accounting; Calculating machines; Cost accounting; Decimal system; Interest; Mensuration; Metric system

Arithmetic, Mental

- Cube and fifth roots by mental arithmetic. A. J. Lotka. Sci Am S 76:194-5 S 27 '13

Arizona**Description and travel**

- Engineer's stage journey through Arizona and Mexico in 1880. C. L. Annan. map Eng N 69:1128-30 My 29 '13

Industries and resources

- Oro Blanco district of Arizona. M. C. Milton. il Eng & Min J 96:1005-7 N 29 '13

Arizona copper company

- Report for year ended Sept. 30, 1912. Eng & Min J 95:1038 My 24 '13

Arkansas (United States steamship)

- Injury to the hull of the U. S. S. Arkansas by grounding. il Eng N 70:439-41 S 4 '13

Arkansas association of public utility operators

- Sixth annual convention, Little Rock, May, 1913. Elec Ry J 41:888-9 My 17 '13; Elec W 61:1025-7 My 17 '13

Armatures

- Armature mmf relations in synchronous machines. J. H. Morecroft. Elec W 62:1106-8 N 29 '13
 Dynamo and motor armature windings. C. P. Poole. plans Power 37:599-600 Ap 29 '13
 Method of locating grounds in armatures. Elec W 62:295 Ag 9 '13
 Primer of electricity. plans Power 37:741-2 My 27 '13
 Wave-connected armature windings. C. P. Poole. Power 38:195-7, 227-8 Ag 5-12 '13
See also Commutators; Dynamos; Electromagnets

Armor plate

- Harveyized armor plate royalty. Iron Age 91:425 F 13 '13
 Manufacture of armor plate. D. K. Bulens. Iron Age 92:553-5 O 30 '13
 Millions for naval armor—the remedy. L. E. Browne. Sci Am 109:110 Ag 9 '13
 Should the government manufacture its own armor plate? Sci Am 109:62 Jl 26 '13

Armored trains

- Fort that travels on wheels; Schneider mobile batteries for coast defence. il Sci Am 109:469 D 20 '13

Armories

- Erecting the 22d regiment armory, New York. il Eng Rec 67:185 F 15 '13
 Large arch-truss drill-hall, for university of Illinois. il plans Eng N 70:1182-5 D 11 '13
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Armstrong, William George, 1st baron, 1810-1900

- Armstrong works: pioneer in development of modern ships, guns, and armor. il Sci Am 109:453-4 D 13 '13

Armstrong company

- Armstrong works: pioneer in development of modern ships, guns, and armor. il Sci Am 109:453-4 D 13 '13

Arrowrock dam

- Construction camp at Arrowrock dam. A. B. Mayhew. il Eng Rec 68:116-8 Ag 2 '13
 Construction of Arrowrock dam, Idaho. il Eng Rec 68:265-7 S 6 '13
 Design and specifications for the Arrowrock dam, U. S. reclamation service. plan Eng N 69:118-20 Ja 16 '13
 Excavation for the Arrowrock dam, Idaho. C. H. Paul. il map Eng N 70:93-100 Jl 17 '13

Arsenals

- Steelwork of the Broadway arsenal, Buffalo. il plan Eng Rec 67:301-2 Mr 15 '13

Arsenic

- Arsenic as an agent in metal coloring. E. Blissett, jr. Metal Ind n s 11:124-5 Mr '13
 Arsenic in 1912. Eng & Min J 95:96 Ja 11 '13
 Arsenic trioxide from flue dust. J. O. Elton. Am Inst Min E Bul 80:1497-1509 Ag '13
 Determination of arsenic and antimony in converter and electrolytic copper. E. E. Brownson. Am Inst Min E Bul 80:1481-95 Ag '13

Art, Primitive

- Plastic art of prehistoric man. il Sci Am 108:270 Mr 22 '13

Art galleries

- Lighting of the Cleveland art loan exhibition. Elec W 62:1332 D 27 '13

Artesian wells

- Mysteries of artesian wells. Sci Am 108:103 Ja 25 '13

Artificial ice. See Ice—Manufacture**Artificial limbs**

- Artificial limbs: ancient and modern. A. H. J. Keane. Sci Am 108:403 My 3 '13

Artificial meat. See Meat, Artificial**Artillery**

- Grueling tests for artillery. il Sci Am 108:25 Ja 11 '13

See also Naval guns

Arts and crafts

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Ash handling

- Changing from oil fuel to coal. F. V. Hetzel. diag Power 38:803-4 D 2 '13
 Cleveland electric illuminating co. ash handling plant. il Iron Age 91:426 F 13 '13
 Coal and ash handling at Lake Shore plant, Cleveland. A. D. Williams. il Power 37:768-71 Je 3 '13
 Conveyor installation at Pacific Mills, South Lawrence, Mass. il plan Iron Age 91:882-3 Ap 10 '13
 Features of the Lemp brewing company's plant, St. Louis, Mo. il Power 38:420-1 S 23 '13
 Motor-driven coal and ash-handling equipment at Pacific Mills, South Lawrence, Mass. il Elec W 62:1178-9 D 6 '13
 Novel ash-handling system. il Power 38:526-7 O 14 '13
 Pacific Mills coal- and ash-handling equipment, South Lawrence, Mass. il Power 38:425-7 S 23 '13; Ind Eng 13:436-8 O '13
 Pneumatic ash-handling test. Eng Rec 68:416 O 11 '13
 Underwater horizontal ash discharger. F. P. Palen. il Eng M 46:287-8 N '13

Asiatic cholera. See Cholera, Asiatic**Asphalt**

- Asphalt paving cements and road binders. J. W. Howard. Eng Rec 68:345-7 S 27 '13
 Asphalt waterproofing on masonry railway structures. W. H. Finley. Eng M 44:113-5 O '12
 California asphaltum deposits and methods of mining. E. A. Ward. il Sci Am 109:427-8 D 6 '13
 Characteristics and differentiation of native bitumens and their residuals. C. Richardson. Eng Rec 67:466-8 Ap 26 '13

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- Characteristics and differentiation of native bitumens and their residuals. J. R. Draney. Eng Rec 67:675 Je 14 '13
 Determination of asphalt in oils. Eng & Min J 96:310 Ag 16 '13
 Method of determining the toughness of bituminous materials. Eng Rec 67:72 Ja 18 '13
 Natural asphalt deposits of California. J. R. Price. Eng N 70:937 N 6 '13

Asphalt pavements. See Pavements, Asphalt**Asphalt plants**

- Cost of asphalt repairs. il Munic Eng 44: 387-91 My '13
 Detroit's municipal asphalt plant. H. B. Pullar. il Munic Eng 45:435-7 N '13
 Inefficient operation of Dayton's asphalt repair plant. il Munic Eng 41:127-30 F '13
 Investigation of municipal asphalt plants; cost data collected in report recommending plant for Washington, D. C. Eng Rec 67:169-2 F 8 '13
 Municipal asphalt plant of St. Louis, Mo. il Munic Eng 45:324-8 O '13
 Municipal asphalt repair plant at St. Paul, Minn. Munic Eng 45:463-4 JI '13
 Semi-portable bituminous mixing plant, Springfield, Mass. il Eng Rec 68:212 Ag 23 '13; Eng N 70:420 Ag 28 '13
 Why some municipal asphalt plants fail. H. B. Pullar. Munic Eng 45:231-4 S '13

Assay offices. See United States—Assay offices**Assaying**

- Assay method for palladium and platinum. H. D. Greenwood. Eng & Min J 96:1175 D 20 '13
 Assay of gold and silver by the iron-nail method. E. J. Hall and C. W. Drury. Am Inst Min E Bul 78:1059-66 Je '13; Same cond. Eng & Min J 96:1125-6 D 13 '13; Discussion. Am Inst Min E Bul 83:2683-92 N '13
 Bone ash vs. cement cupels. D. M. Liddell. Eng & Min J 96:309 Ag 16 '13
 Cornish tin dressing and the vaning assay. Met & Chem Eng 11:106 F '13
 Determination of lead in unchilled slags. R. T. Wilder. Eng & Min J 96:695-6 O 11 '13
 Electrolytic vs. iodide assay for copper. P. S. Harrison. Eng & Min J 95:283-4 F 1 '13
 Empirical vs. exact methods. Met & Chem Eng 11:63-4 F '13
 Gay-Lussac method of silver determination. E. P. Dewey. Am Inst Min E Bul 76:587-602 Ap '13
 Preliminary testing work at Yuanmi mill, West Australia. Eng & Min J 95:423-4 F 22 '13
 Quantitative determination of the precious metals—gold, silver and platinum. Trenkner. Met & Chem Eng 11:567-8 O '13
 Recent American progress in the assay of copper-bullion. E. Keller. il Am Inst Min E Bul 80:2093-15 Ag '13; Discussion. 83:2738-9 N '13
 Salting assays by salted cupels. D. M. Liddell. Eng & Min J 96:835 N 1 '13
See also Metallurgy; United States—Assay offices

Associated foundry workmen

- Proceedings of the annual convention at Chicago, Oct., 1913. Foundry 41:461-8 N '13

Association and associations

- Future of associations. Elec W 62:726 O 11 '13
Association of American steel manufacturers
 Specifications for open-hearth steel blooms, billets and slabs for forging purposes. Met & Chem Eng 11:88-9 F '13

- Association of Edison illuminating companies**
 34th convention, Cooperstown, N. Y., Sept., 1913; reports. Elec W 62:513-4, 566-9 S 13-20 '13

- Association of iron and steel electrical engineers**

- 7th annual convention, New York city, Sept., 1913. Elec W 62:621-2, 682-3 S 27-O 4 '13

Association of railway electrical engineers

- 6th annual convention, Chicago, Oct., 1913. Elec W 62:882-4 N 1 '13

- 6th annual convention, Chicago, Oct., 1913. Eng N 70:888 O 30 '13

- 6th annual convention, Chicago, Oct. 1913. Ry Age 55:756-7, 831-3 O 24-31 '13

Association of railway telegraph superintendents

- 32d annual convention, St. Louis, May, 1913. Elec W 61:1127-8 My 31 '13

- 32d annual convention, St. Louis, 1913. Ry Age 54:1187-8 My 30 '13

- 32d annual convention, St. Louis, May, 1913. Ry & Eng R 53:455 My 17 '13

Association of transportation and car accounting officers

- Summer meeting at Charlevoix, Mich., June, 1913. Ry Age 55:60 JI 11 '13

- Winter meeting, Galveston, Dec., 1913. Ry Age 55:1158-9 D 19 '13

Assuan dam

- Completion of the rebuilt Assuan dam. il Eng N 69:143-4 Ja 23 '13

- Enlargement of the Aswan dam. il Sci Am 108:140-1 F 8 '13

- Raising the Assuan dam. il plan Eng Rec 67: 725-8 Je 28 '13

Assyria**Antiquities**

- Statue from the land of Semiramis. E. J. Banks. il Sci Am 109:85 Ag 2 '13

Astoria tunnel

- Construction. H. Carpenter. il Eng N 70:737-43 O 16 '13

Astronomical instruments

- Automatic astronomical calculator; Butterfield azimuth chronometer. A. H. Brown. il Sci Am S 76:44-5 JI 19 '13

- See also* Telescope

Astronomical models

- New way of studying astronomy: Atwood celestial sphere. il Sci Am 108:557-8 Je 21 '13

Astronomical photography

- Integrating opacimeter for stellar photography. J. Boyer. il Sci Am 109:124 Ag 16 '13

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- Annual report year ending June 30, 1913. Ry Age 55:846-8 O 31 '13

- Rehabilitation of the Santa Fe system. Ry & Eng R 53:754-5 Ag 9 '13

- Revenues and expenses. map Ry Age 55:811-2 O 31 '13

Atlanta, Ga.**Sanitary affairs**

- Sewage purification at Atlanta, Ga. il Munic Eng 45:224-30 S '13

Atlantic City, New Jersey

- Channel- and beach-maintenance problem. R. R. Raymond. map Eng N 70:150-4 JI 24 '13

- Proposed improvement of an ocean bar at Atlantic City. L. M. Haupt. Eng N 70:523-4 S 11 '13

Atmosphere

- Physics of the atmosphere. W. J. Humphreys. J Fr Inst 175:207-44 Mr '13

- See also* Air; Meteorology

Atmospheric pressure

- Barometric pressure and mine gases. Colliery 33:477-9 Ap '13

- See also* Barographs

Atomic theory

- Molecular structure and the origin of the elements. Sci Am 108:154 F 15 '13

Atomic weights

- Atomic weight of bromine. H. C. P. Weber. U S Bur Stand Bul 9:131-50 Mr 15 '13

- International atomic weights. Eng & Min J 95:130 Ja 18 '13

Atomizers

- Developments in oil fuel burning. E. H. Peabody. il Int Marine Eng 18:14-7 Ja '13; Same cond. Power 37:205-8 F 11 '13; Same cond. Eng N 69:1000-2 My 15 '13

- Methods of spraying oil fuel. R. T. Strohm. diags Elec W 62:491-3 S 6 '13

Atoms

Appearance of helium and neon in vacuum tubes. J. J. Thomson. *Sci Am S* 75:150 Mr 8 '13

Birth of the atom: has matter been synthesised. *Sci Am S* 75:154-5 Mr 8 '13

Counting atoms by scintillations. E. Marsden. *il Sci Am S* 75:158 Mr 8 '13

Has matter been synthesised? J. W. N. Sullivan. *Sci Am* 108:226 Mr 8 '13

In the world of molecules. A. J. Lotka. *Sci Am* 108:226-7 Mr 8 '13

Structure of the atom. J. J. Thomson. *Sci Am S* 75:218-9, 234-5, 250-1, 262-3, 286-7, 298-9 Ap 5-My 10 '13

Triatomic hydrogen and other researches in molecular physics. J. J. Thomson. *il Sci Am S* 75:157-8 Mr 8 '13

See also Atomic theory; Atomic weights; Electrons; Matter

Auckland, New Zealand

Electrical equipment and concrete construction at Auckland harbor. W. Wilson. *il map Eng M* 46:217-36 N '13

Australia**Commerce**

Australia—a fine export field. maps *Automobile* 28:919-21 My 1 '13

Authorship

See also Copyright; Editing; Proof reading

Autobuses. *See* Motor omnibuses

Autocars. *See* Automobiles

Autoclaves

Data of tests of an exploded steam autoclave. G. Goldberg. *Am Soc M E J* 35:1786-7 D '13

Auto-intoxication

Relation of a pure water-supply to chronic intestinal tract infection; cond. from paper read before Am. Pub. Health Assn., 1912. N: S. Hill and L. R. Whitcomb. *Eng N* 69:219-20 Ja 30 '13

Automatic machinery. *See* Machinery, Automatic

Automatic sprinklers. *See* Sprinklers

Automatic train-stop. *See* Railroads—Automatic stop

Automobile accidents

Automobile fatalities and railway fatalities. *ly Age* 55:741-2 O 24 '13

Speed factor in collisions. *Sci Am* 109:138 Ag 23 '13

Teaching Massachusetts children safety. *Automobile* 28:1199-201 Je 12 '13

Automobile batteries. *See* Automobiles—Electric equipment; Storage batteries

Automobile brakes. *See* Brakes, Automobile

Automobile chamber of commerce

Automobile chamber of commerce formed. *Automobile* 28:251 Ja 16 '13

Automobile costumes

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Spring apparel for the automobilist. *il Automobile* 28:1049-51 My 22 '13

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Automobile engineers, Society of. *See* Society of automobile engineers

Automobile engines

Adapting of Diesel motors to automobiles. *Automobile* 28:547 F 27 '13

Analysis of knocking; its cause and remedy. *Automobile* 28:1252-4 Je 19 '13

Assistance for the designing and mounting of camshafts. *Automobile* 28:980-1 My 8 '13

Carter motor has overhead piston valve. *Automobile* 29:1208-9 D 25 '13

Chipping or dissolving scale from cylinders. G. Rice. *Sci Am* 108:339 Ap 12 '13

Coal engine for automobiles run by coal gas. V. Hart. *plan Eng M* 44:413-5 D '12

Combination two-cycle and turbine motor. *plan Automobile* 28:1135 My 29 '13

Comparison of English motors for three years in bore, stroke and horsepower. *Automobile* 29:904-5 N 13 '13

Continental has baby motor motor, *diags Automobile* 29:1208-9 D 25 '13

Data from German aviation motor contest of interest to builders of automobile motors. *Automobile* 29:716-8, 776-8 O 16-23 '13

Diesel motors for automobiles. *plan Automobile* 28:296-8 Ja 23 '13

Flameless combustion and automobiles of the future. *il diags Automobile* 28:934-6 My 1 '13

Franklin car and third cylinder missing. *diags Automobile* 29:288-9 Ag 14 '13

French motor sizes for the last three years; tabulation. *Automobile* 29:813, 833-5 O 30 '13

French small motors through American eyes. E. P. Batzell. *Automobile* 29:1148-9 D 18 '13

Gasoline motor with plane slide valves. *diags Automobile* 28:1060-2 My 22 '13

Guitton's combination sleeve-and-rotary-valve motor. *diags Automobile* 29:157-8 Ji 24 '13

High-speed motors for new models of Hispano-Sulza cars. *diags Automobile* 29:830-1 O 30 '13

Horsepower per litre cylinder volume; sleeve-valve versus poppet type. C. Y. Knight. *Automobile* 29:1050-1, 1073 D 4 '13

Increasing the number of cylinders. *Automobile* 29:505 S 18 '13

Ingenious overheating tell-tale. *Sci Am* 108:48 Ja 11 '13

Is engine power affected by atmosphere? H. Chase. *Automobile* 29:149 Ji 24 '13

Light motors show efficiency and power. E. H. Delling. *Automobile* 29:705-7 O 16 '13

Light weight reciprocating motor parts. M. R. Machol. *Iron Age* 91:1238 My 22 '13

Location of gasoline engine troubles made easy. *il Sci Am* 108:34-5 Ja 11 '13

Low's gasoline motors à la Diesel. *plans Automobile* 28:632-3 Mr 13 '13

Main considerations in design of speedy modern motors. L. H. Pomeroy. *Automobile* 29:1112-3 D 11 '13

Method of finding horsepower and how to remove carbon. *Automobile* 29:1106-7 D 11 '13

Modern racing motors with valve timing unsuitable for ordinary traffic. *diags Automobile* 29:204-5 Ji 31 '13

Moline motor shows power increase. *Automobile* 29:1223 D 25 '13

Motor chokes up at low speed. *diag Automobile* 28:1178-9 Je 5 '13

Non-poppet motors influence poppet types. E. P. Batzell. *diags Automobile* 28:760-1, 802-3, 844-5 Ap 3-17 '13

Premier adopts new valve-in-head motor. *plans Automobile* 29:1165-7 D 18 '13

Prospects for Diesel motors for automobile use. *diags Automobile* 28:231-2 Ja 16 '13

Reasons why medium-stroke-bore ratio is best. E. P. Batzell. *il Automobile* 29:2230-1, 280-1, 326-7, 372-3, 418-20 Ag 7-8 4 '13

Rutenber brings out new six motor. *diags Automobile* 29:708-9 O 16 '13

Sleeve-valve car makes 14-hour record. *diag Automobile* 28:1209 Je 12 '13

Smaller motors at Paris salon. W. F. Bradley. *il Automobile* 29:803-7 O 30 '13

Stroke-bore ratio affects efficiency. *Automobile* 28:524-7 F 20 '13

Stroke vs. bore. *Automobile* 28:74-8, 233-5 Ja 9-16 '13

Theory of the water-cooling of gasoline motors. H. Petit. *Automobile* 28:44-5 Ja 2 '13

Timing intake and exhaust valves. *Automobile* 28:1072-3 My 22 '13

Trouble with cylinder fit. *Automobile* 29:476-7 S 11 '13

Two-cycle motors. *plan Automobile* 28:463 F 13 '13

Warner motor is of block type. *plan Automobile* 28:1275 Je 19 '13

What causes carbon deposits. *diag Automobile* 29:127-8 Ji 17 '13

Why is four-cylinder type more economical? J. Munden. *Automobile* 28:1314-5 Je 26 '13

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Why Moline adopted Knight motor. W. H. Van Dervoort. *Automobile* 29:1149 D 18 '13

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Fuel

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Auxiliary contrivances for reducing gasoline consumption, and improving action of motors. *diags Automobile* 29:876-7 N 6 '13

Benzol beats gasoline in economy test. *Automobile* 28:1127 My 29 '13

Britain's struggle to evolve new liquid motor fuels. *Automobile* 28:1121-2 My 29 '13

Cheap fuel discovered in London. *Automobile* 29:487 S 11 '13

French kerosene motor for automobiles: Bellem engine starts cold on kerosene and runs on any kind of crude oil. *il plan Automobile* 28:679-81 Mr 20 '13; Same cond. *Eng M* 45:272-4 My '13

Fuel situation in England. J. S. Critchley. *Automobile* 28:840 Ap 17 '13

G. C. vaporizer shows good exhaust test. *il Automobile* 29:346 Ag 21 '13

Kerosene vaporizer cuts down fuel expense. *diag Automobile* 28:909 Ap 24 '13

Latent heat of vaporization. *Automobile* 28:906-7 Ap 24 '13

Low-grade fuel for motor trucks. N. B. Pope. *Automobile* 28:294-5 Ja 23 '13; Same cond. *Iron Age* 91:430 F 13 '13

Motor fuel engages attention of Indiana Soc. A. E. *Automobile* 28:565 F 27 '13

Motor fuel from coal: higher recovery of light oils by use of limestone in by-product coke ovens. A. Rollason and A. W. Taylor. *Eng M* 46:434-6 D '13

Motor spirit to solve fuel problem for the passenger car. *Automobile* 28:535-7 F 27 '13

New British automobile fuel not up to par. R. W. A. Brewer. *Automobile* 29:861 N 6 '13

New Standard oil fuel: motor spirit. *Automobile* 28:500 F 20 '13

Paraffin as a fuel. *diags Automobile* 28:950-1 My 1 '13

Solving the fuel problem for the motor truck. H. W. Slauson. *il diags Mach* 20:121-4 O '13; Same. *Sci Am S* 76:292-4 N 8 '13

Sources of motor fuel. *Sci Am S* 76:159-60 S 6 '13

Taxi run 62 miles on 20 cents worth of fuel. *diag Automobile* 28:1167-8 Je 5 '13

Temperature limits in combustion. R. W. A. Brewer. *Automobile* 29:598-9 O 2 '13

Test Harroun carburetor on kerosene. D. S. Hatch. *il Automobile* 28:908-9 Ap 24 '13

Testing flow of fuel thru nozzles. R. M. Anderson. *Automobile* 28:1268 Je 19 '13

Testing various combinations of kerosene, gasoline and ether as fuel for motor vehicles. *Automobile* 28:687 Mr 20 '13

Two fuels from kerosene and alcohol. *il Automobile* 28:1219 Je 12 '13

Will the automobile be driven by kerosene? H. A. Morris. *il Sci Am* 108:238 Ja 11 '13

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Ignition devices

Battery versus magneto ignition systems. B. F. Bailey. *diags Automobile* 29:376-9 Ag 28 '13

Jump spark ignition systems. *il Automobile* 29:1195-7 D 25 '13

Magneto field well stocked. *il Automobile* 28:374-81 Ja 30 '13

Make-and-break ignition system. J. K. Mercer. *Automobile* 29:28-9 Jl 3 '13

New spark plugs. *il Automobile* 28:360-3 Ja 30 '13

Possible causes of premature ignition. *Automobile* 28:805 Ap 10 '13

Splittorf ignition on Ohio 1911. *plan Automobile* 28:1072 My 22 '13

See also Gas and oil engines—Ignition; Magnetos

Manufacture

Heat treating at an automobile engine plant; Continental motor mfg co., Detroit. *il plans Iron Age* 91:71-3 Ja 2 '13

How aluminum crank cases and gray iron pistons are molded and cast by the Rutenber motor co. *il Foundry* 41:87-92 Mr '13

Isolated plant of gasoline engine factory; features of electrical and steam-heating station of Continental motor mfg. co., Detroit, Mich. H. C. Spillman. *il plans Elec W* 61: 343-6 F 15 '13

Light weight reciprocating parts for motors. M. R. Machol. *Mach* 19:859-60 Jl '13

Machining and assembling automobile engines: routine of the Continental motor mfg. co. H. C. Spillman. *il plan Iron Age* 92:178-82 Jl 24 '13

Machining the Ford cylinders. F. H. Colvin. *il Am Mach* 38:841-6 My 22 '13

Milwaukee casts exhaust with cylinders. *il Automobile* 28:1077 My 22 '13

Molding gas engine cylinders for motor cars: methods pursued at plant of Campbell, Wyant & Cannon foundry co., with details of coremaking. *il Foundry* 41:1-6 Ja '13

Testing

A. C. A. to test Packard motor 200 hours. *Automobile* 28:926 My 1 '13

Continental motor manufacturing co. testing 25,000 motors a year. *il plan Automobile* 29:594-6 O 2 '13

Engine testing at the Northway motor & mfg. co. plant. J. O. Heinze. *diags Automobile* 28:807-11 Ap 10 '13

Exhaust gas analysis. *Automobile* 28:288-91, 413-5, 466-7, 512-3 Ja 23, F 6-20 '13

Factory methods of testing automobile motors. S. Petman. *il Sci Am* 108:284-6 Mr 29 '13

Full report of Packard motor test. F. R. Hutton; H. Chase. *il Automobile* 28:1080-2 My 22 '13

Magic motor on test at A. C. A. laboratory. *Automobile* 28:738 Mr 27 '13

Making more tests in less space. *diag Automobile* 28:1169 Je 5 '13

Methods of testing automobile motors. P. P. Dean. *Automobile* 28:739 Mr 27 '13

Metropolitan engineers discuss motor testing. *Automobile* 28:435 F 6 '13

Motor testing plants. J. E. Schipper. *il plan Automobile* 28:640-3 Mr 13 '13

Sleeve vs. poppet in test. C. Y. Knight. *diags Automobile* 29:119-21 Jl 17 '13

Testing room for automobile engines. H. C. Spillman. *il Iron Age* 91:1047-8 My 1 '13

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Automobile horns. *See* Automobile signals

Automobile industry

Alco discontinues automobile and truck department. *Automobile* 29:366-7 Ag 28 '13

American automobiles in world's markets. *Automobile* 28:952-3 My 1 '13

American danger: how Germany views our automobile industry. *Sci Am S* 75:19 Ja 11 '13

Australia—a fine export field. *maps Automobile* 28:919-21 My 1 '13

Car registrations gain 71,884 in 3 months. D. M. Lay. *Automobile* 29:1089-91 D 11 '13

Census shows sixfold increase over 1904. D. M. Lay. *Automobile* 29:361-5 Ag 28 '13

Detroit, the city built by the automobile industry. L. V. Spencer. *il Automobile* 28:791-7 Ap 10 '13

Detroit to make 395,050 motor vehicles for 1914. L. V. Spencer. *il Automobile* 29:1185-9 D 25 '13

England and America lead in Australian trade. S. Oxberry. *Automobile* 29:589-91 O 2 '13

Future growth of the automobile industry. *Iron Age* 92:621-2 S 18 '13

Great Britain is largest buyer. *Automobile* 29:899-901 N 13 '13

Guatemala has 200 cars. *Automobile* 28:333 Ja 30 '13

House organ; its object—when published—made to the hour. *Automobile* 28:863 Ap 17 '13

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- Indiana—Pacific entrants carefully planned advertising. Automobile 29:324-5 Ag 21 '13
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- May production breaks all records. J. E. Schipper. Automobile 29:1-3 Ji 3 '13
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- Wilson-Underwood schedule proposes reduction of duty on chassis and parts. Automobile 28:798-9 Ap 10 '13
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- Bay state has six new automobile laws. Automobile 29:533 S 18 '13
- Bay state hopes to defeat truck bills. Automobile 28:922-3 My 1 '13
- Dealers organize to meet proposed New York legal measures. C. T. Terry. Automobile 28:581 Mr 6 '13
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- Coal engine for automobiles run by coal gas. V. Hart. *plan Eng* M 44:113-5 D '12
- Cole 1914 models. *il* Automobile 29:172-3 Jl 24 '13
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- McFarlan concentrates on six for 1914. *il* Automobile 29:916-7 N 13 '13
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- Standards committee of the Soc. A. E. report. Automobile 28:252-3 Ja 16 '13
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- Traffic by land. J. E. Kuhn. *Sci Am* S 76:139 Ag 30 '13
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- Tribune car to have left drive. *plan* Automobile 28:696-7 Mr 20 '13
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 Investigation of efficiency of worm gearing for automobile transmission: discussion of paper by W. H. Kenerson. *Am Soc M E J* 35:676-80 Ap '13
 Mondex—magic gearset. diags Automobile 28:783 Ap 3 '13
 New noiseless gear for motor cars. *il* Sci Am 109:149 Ag 23 '13
 Norwalk car has electric shift. *il* Automobile 29:80-1 J1 10 '13
 Pneumatic or electric gearshift? S. R. Hunter. Automobile 29:865 N 6 '13
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 Complications of electric lighting. Automobile 29:1200 D 25 '13
 Double-reflector searchlight for automobiles. F. C. Perkins. *il* Sci Am 109:55 J1 19 '13
 Dynamo electric lighting for motor cars. A. E. Waller. *Am Inst E E Pro* 32:1972-85 N '13; Same. *Sci Am* S 76:394-5 D 20 '13
 Electric cranking and lighting. *il* Automobile 28:242-7, 310-5, 339-45, 416-21 Ja 16-F 6 '13
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 Electric-lighting system for automobiles. *il* Elec W 61:159-60 Ja 18 '13
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Making two automobile lamps do the work of four. *Sci Am* 109:382 N 15 '13
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Automobile and machine tools. *Am Mach* 38:161 Ja 23 '13
Automobile manufacturing methods. D. T. Hamilton. *il diags Mach* 19:870-5 Jl '13
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Broaching automobile parts. C. L. Lucas. *il diags Mach* 19:787-8 Je '13
Building an automobile every 40 seconds. F. H. Colvin. *il Am Mach* 38:757-62 My 8 '13
Drawing and forming an automobile clutch cone. D. T. Hamilton. *il Mach* 20:182-3 N '13
Drilling and milling in the shops of the Winton motor car co., Cleveland. F. H. Colvin. *il Am Mach* 38:138-40 Ja 23 '13
European electric steel automobile castings. E. F. Lake. *il Iron Age* 91:768-70 Mr 27 '13
Forging and machining automobile front axles. *il Mach* 20:287-9 D '13
Foundry specializing in motor car castings: aluminum and brass shop of the Willys-Overland co. *il plan Foundry* 41:537-42 D '13
Gray iron mixtures for motor castings. H. B. Swan. *il Foundry* 41:471-8 N '13; Same. *Iron Age* 92:893-7 O 23 '13; Same. *Iron Tr R* 53:963-8 N 27 '13
Heat-treated automobile frame steel. D. K. Cullens. *il Iron Age* 92:471-1 Jl 24 '13
How materials for automobiles are inspected: system employed by Packard motor car co. E. F. Roberts. *diag Automobile* 28:1306-8 Je 26 '13; Same cond. *Iron Tr R* 53:269-42 Jl 31 '13; Same cond. *Ind Eng* 13:418-21 O '13; Same cond. *Iron Age* 92:158-60 Jl 17 '13
Iron and steel committee of Society of automobile engineers furnish test figures. *il Automobile* 28:1220-1 Je 12 '13
Keys and keyways for automobile. *il Automobile* 29:424-6, 467-9 S 4-11 '13
Laboratories of the modern factory: apparatus and investigations of the Studebaker corporation. Detroit. E. F. Lake. *il Iron Age* 92:387-91 Ag 21 '13
Malleable iron castings for automobile work. E. Tonedca. *il Iron Age* 91:1426-9 Je 12 '13; Same. *Iron Tr R* 52:1358-63 Je 12 '13; Same. *Automobile* 28:1269-3 Je 19 '13; Same. *Foundry* 41:276-80 Jl '13
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Maxwell uses one factory for spare parts for 244 models. *il Automobile* 29:1098-1100 D 11 '13
Model automobile foundry: Willys-Overland co., Toledo, O. *il plan Metal Ind n s* 11:175-6 N '13
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Overland company's aluminum foundry. *il plan Automobile* 29:159-61 S 11 '13
Packard motor car company, Detroit. O. J. Abell. *il Iron Age* 91:1317-51, 1415-21, 1473-6 Je 5-19 '13
Secrets of automobile casting manufacture. *il Foundry* 41:261-71 Jl '13
Shop practice of the Willys-Overland co., Toledo; evolution of a four-throw crankshaft-machining flywheels, cam-shafts, etc. D. T. Hamilton. *il Mach* 19:495-9 Mr '13
Six-story continuous foundry building of the Ford motor company. O. J. Abell. *il Iron Age* 92:1-7 Jl 3 '13
Standardizing the making of automobile parts. *Am Mach* 38:833 My 15 '13
Tools for a high grade automobile. R. Mawson. *il Am Mach* 38:127-30 Ja 23 '13
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Nomenclature

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Price lists

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What gasoline pleasure car can I buy? a composite price list of American pleasure cars. T. M. R. von Kéler. *Sci Am* 108:44 Ja 11 '13

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Comprehensive tests to develop data for improvements of springs and tires. *Automobile* 29:288-9 Ag 14 '13
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Defects in springs. G. H. Baillee. *Automobile* 28:1124-6 My 29 '13
Design of automobile springs. D. Landau and A. Golden. *Am Mach* 38:148-50 Ja 23 '13
Friction between the spring leaves a small factor in the damping of oscillations. *Automobile* 29:1154-6 D 18 '13
Progress in spring suspension. H. C. Turner. *Automobile* 28:1276-7 Je 19 '13
Reasons for the wobbling of front wheels. *Automobile* 29:380-1 Ag 28 '13
Riedler on the action of springs. *Automobile* 28:846-7 Ap 17 '13
Tests for leaf springs and their treatment. E. F. Lake. *il Mach* 20:217-21 N '13

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Deaco starter is made in three types. *diags Automobile* 29:972-3 N 20 '13
Effect of the self-starter on motor-truck development. *Eng Rec* 67:510 My 10 '13
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- Motor starters as they see them in France. *diag* Automobile 29:1024-5 N 27 '13
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- Tight motor easier to start. Automobile 29:164-5 J1 21 '13
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Statistics

- Automobiles now form 59 per cent. of Massachusetts' vehicles. J. T. Sullivan. Automobile 28:495-9 F 20 '13
- Car registrations gain 71,884 in 3 months. D. M. Lay. Automobile 29:1082-91 D 11 '13
- Registrations, 1912, 1,010,483. D. M. Lay. Automobile 28:327-33 Ja 30 '13

Steering gear

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- Left side steer and center control in motor cars. H. Greene. *il* Sci Am 108:221 Mr 8 '13
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- Horsepower as basis for tax discussed. Automobile 28:765, 812-3, 849, 894-5, 1049-1, Ap 3-24, My 15 '13

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- Detecting resistance—saving fuel. W. C. Marshall. *il* Automobile 28:833-5, 888-90, 937-9, 978-9 Ap 17-My 8 '13
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Wheels

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- Front wheel design. F. C. Sheehy. *plan* Automobile 28:355 Ja 30 '13
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- Houk wheels. *il* Automobile 29:719 O 16 '13
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- Machine for swaging automobile wire-wheel spokes. Sci Am 109:214 S 13 '13
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- Shock-absorbing hub. *il* Sci Am 108:318 Ap 5 '13

- Spring substitute for a pneumatic tire. *il* Sci Am 108:360 Ap 19 '13
- Spring wheel. M. K. Domis. Sci Am 108:197 Mr 1 '13
- Spring wheel for automobiles. *il* *plan* Eng N 69:781 Ap 17 '13
- Spring wheel problem. E. P. Du Pont. Sci Am 108:375 Ap 26 '13
- Spring wheels cure bumps. H. T. Dunbar. Automobile 28:1211-5 Je 12 '13
- Straight-spoke wire wheel more resilient than tangent type. J. B. Dunlop. *il* Automobile 29:860-1 N 6 '13
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- Wire automobile wheels not a fad. W. F. Evans. Iron Age 92:190 J1 24 '13

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Windows

- Frameless glass windows for automobiles. G. J. Mercer. *plan* Automobile 28:644 Mr 13 '13
- How non-inflammable celluloid is actually used for automobiles and aeroplanes. Automobile 28:1022-3 My 15 '13

Automobiles, Care of

- Automobile repairs. F. C. I. *il* Sci Am 108:583 Je 28 '13
- Constant inflation means long tire life. Automobile 28:1316-7 Je 26 '13
- Daily care of the car is essential. Automobile 29:421 S 4 '13
- Directions for grooming an automobile. Automobile 28:567-8 F 20 '13
- Information on cleaning, fast driving, and prevention of rust on tire rims. Automobile 29:73-4 J1 10 '13
- Kerosene for decarbonizing. *il* Automobile 28:904-5 Ap 24 '13
- Location of gasoline engine troubles made easy. *il* Sci Am 108:34-5 Ja 11 '13
- Low inflation on bad roads. J. B. Dunlop. Automobile 29:692-3 O 16 '13
- Preserving car finish. Automobile 29:817 O 30 '13
- Resuscitating a dead storage battery. Automobile 28:949 My 1 '13
- Rust spots on car body. *il* Automobile 28:818-9 Ap 10 '13
- Time for cleaning the car. Automobile 28:721 Mr 27 '13
- Tire repairs—roadside and garage. J. E. Schipper. *il* Automobile 29:495-9 S 18 '13
- Automobiles, Electric. *See* Electric trucks; Electric vehicles

Automobiles, Military

- Automobile field kitchen. *il* Sci Am 108:500 My 31 '13
- Military automobile gun. *il* Sci Am 108:247 Mr 15 '13
- Motorizing Mars in France. *il* Automobile 29:639-43 O 9 '13

Automobiles, Municipal

- Automobile in the police department, Peoria, Ill. W. W. Rhoades. *il* Munic Eng 44:357-8 Ap '13
- Automobile pay car for Detroit city employees. *il* Munic Eng 44:140 F 13
- Controlling use of department automobiles in Philadelphia. J. Reed. Munic Eng 44:253-1 Mr '13

See also Motor trucks, Municipal

Automobiles and roads

- Automobiles and improved roads. L. W. Page. *il* Sci Am 109:178 S 6 '13
- Banff-Windermere motor road. *il* Eng Rec 68:630-1 D 6 '13
- Emery in road races. Automobile 28:508 Mr 6 '13
- Where should the money for good roads construction be spent? Eng N 69:1012 My 15 '13

See also Speedways

- Automobiling. *See* Automobile touring; Automobiles

- Autostable.** W. I. Chambers. *Sci Am S* 75:89-90 F 8 '13
- Auto-transformers.** See Electric transformers
- Avery library.** See Columbia university—Avery library
- Aviation**
- Aeroplane, motor, or aviator? E. L. Ovington. *il Eng M* 44:339-41 D '12
- Big aeroplane and transatlantic flight. *Sci Am* 108:420 My 3 '13
- Crossing the ocean in a flying machine. *Sci Am* 108:446 My 17 '13
- Flying for altitude records. C. Dienstbach. *Sci Am* 109:470 D 20 '13
- Flying in fog and at night. C. Dienstbach. *Sci Am* 109:423 D 6 '13
- Journey in a Zeppelin: impressions of a trip in the airship *Viktoria Luise*. C. Dienstbach. *il Sci Am* 108:449 My 17 '13
- Pégoud's remarkable performances. *il Sci Am* 109:361 O 18 '13
- Record cross-country flight with an American military monoplane. *Sci Am* 109:135 Ag 16 '13
- Safety parachute for airmen. *il Sci Am* 108:520 Je 7 '13
- Turning somersaults with an aeroplane: the remarkable exploit of Adolphe Pégoud. *il Sci Am* 109:240 S 27 '13
- Way stations for a relay flight to Europe. H. H. Suplee. map *Sci Am* 109:496 D 27 '13
- See also Aerodynamic laboratories; Aeronautics; Aeroplane races; Aeroplanes
- Accidents**
- Aeroplane accidents. *Sci Am* 108:512 Je 7 '13
- French army officers killed in balloon ascent. *il Sci Am* S 75:371 Je 14 '13
- Prevention of aviation accidents. E. G. Still. *Sci Am* 109:259 O 4 '13
- Wreck of the first German naval airship *L. I.* C. Dienstbach. *Sci Am* 109:266 O 4 '13
- Aviation field**
- Proposed United States aviation field. *Sci Am S* 75:84 F 8 '13
- Aviation maps.** See Maps, Aeronautic
- Axle lighting.** See Car lighting
- Axles**
- Automobile rear axle design. K. W. Najder. *Mach* 20:36-8 S '13
- Electrically controlled two-speed rear axle design for motor cars. *il Sci Am* 109:95 Ag 2 '13
- Floating types dominate axle field. *diags Automobile* 28:438-41 F 6 '13
- Forging and machining automobile front axles. *il Mach* 20:287-9 D '13
- Interurban car axles. *Elec Ry J* 42:143-4 Jl 26 '13
- Service records of heat-treated chrome-vanadium axles. *Ry & Eng R* 53:571-2 Je 14 '13
- See also Bearings (machinery); Wheels
- Azimuth**
- Automatic astronomical calculator: Butterfield azimuth chronometer. A. H. Brown. *il Sci Am S* 76:44-5 Jl 19 '13
- Azimuth by direct solar observations. G. L. Hosmer. *Eng N* 69:861 Ap 24 '13
- Azimuth by direct solar observation. L. Ross. *Eng N* 69:451-8 Mr 6 '13
- Simple method of obtaining time and azimuth. J. A. Macdonald. *Ry Age* 35:1186 D 19 '13
- B**
- Baalbek, Syria**
- Baalbek the mysterious: H. J. Shepstone. *il Sci Am* 109:456-7 D 13 '13
- Babbitt metals**
- Bearing metal. A. P. Wright. *Metal Ind n s* 11:245-6 Je '13
- Study of bearing metals and testing methods. T. D. Lynch. *il Foundry* 41:291-4 Jl '13; Same. *Metal Ind n s* 11:295-8 Jl '13; Excerpts. *Ind Eng* 13:410 S '13
- Babylonia**
- Reclamation of ancient Babylonia by irrigation. E. J. Banks. *il map Eng N* 69:468-9 Mr 6 '13
- Antiquities**
- Babylonian excavations by the Germans. E. J. Banks. *il Sci Am* 108:357-9 Ap 19 '13
- Backfilling.** See Trenches
- Bacteriology**
- Bacteria in eggs. *Sci Am S* 76:80 Ag 2 '13
- Bacteriology and your health: serums and vaccines in the diagnosis, treatment and prevention of disease. C. F. Bolduan. *il Sci Am* 108:540-1 Je 14 '13
- Bacteriology of ice. E. O. Jordan. *Sci Am S* 75:199 Mr 29 '13
- Salt-rising bread: raising dough with newly discovered bacteria. H. A. Kohman. *il Sci Am* 108:220 Mr 8 '13
- Ultra-microscopic parasites. *Sci Am S* 75:30 F 1 '13
- See also Auto-intoxication
- Bacteriology, Dairy.** See Dairy bacteriology
- Bacteriology, Water.** See Water—Bacteriology
- Baekeland, Leo Hendrik, 1863-**
- Award of the third Willard Gibbs medal to Dr. Baekeland. *por Met & Chem Eng* 11:311-4 Je '13
- Bag-houses**
- Notes on the bag-house in connection with lead blast-furnaces and leady copper-matte converters. A. Eilers. *diags Am Inst Min E Bul* 73: 85-112 Ja '13
- Bagasse**
- Economic combustion of low grade or waste fuels. D. M. Myers. *Eng M* 45:358-60 My '13
- Baggage and express cars**
- Express car for automobile shipments. *il Elec Ry J* 41:721 Ap 19 '13
- New light-weight express cars of the Bay state street railway, Boston. *il plans Elec Ry J* 42:491-4 S 27 '13
- Special baggage car for scenery. *il diags Ry Age (Mech ed)* 87: 615-8 N '13
- Baggage cars.** See Baggage and express cars
- Baird machine company**
- Installing Taylor system in Connecticut plant. *Iron Tr R* 53:221-2 Jl 31 '13
- Baked enamel painting on the cars of Hudson & Manhattan railroad.** *il Elec Ry J* 41:146-9 Ja 25 '13
- Balancing devices for centrifugal pumps.** A. V. Mueller. *diags Eng N* 70: 490-4 S 11 '13
- Balkan war, 1912-1913**
- Bomb-dropping in the Balkans. *Sci Am* 109:278 O 11 '13
- Ball bearings**
- Ball and roller journal bearings. R. H. Grant. *il Mach* 19:34-5 S '12
- Ball bearings—their construction and application. F. H. Peor. *il Mach* 19:880-1 Jl '13; Same. *Sci Am S* 76:294-5 N 8 '13
- Design of ball bearings. F. J. Jarosch. *plans Ind Eng* 13:24-7, 71-4, 117-9 Ja-Mr '13
- Formula for determining the ball circle diameter for ball bearings. W. C. Prior. *Mach* 20:35 S '13
- Manufacture of balls for bearings. T. J. Heller. *il Sci Am S* 76:84-5 Ag 9 '13
- Ribbon type of separator for ball bearings. *il Ind Eng* 13:78-9 F '13
- Specialists who do not specialize in prices. V. W. Page. *Mach* 19:544-5 Mr '13
- See also Bearings (machinery)
- Ballast.** See Railroads—Track
- Ballast cars.** See Cars (ballast)
- Balloon sheds.** See Hangars
- Balloons and airships**
- Achievements of military aircraft. H. Bannerman-Phillips. *il Sci Am* 108:207 Ap 5 '13
- Aerial battleships and flying torpedo boats: German dirigibles versus French aeroplanes. *Sci Am S* 76:35 Jl 19 '13
- Airship envelope fabric. *Sci Am S* 75: 270 Ap 26 '13
- Bombarding a defense with dirigibles. *Sci Am* 109:2 Jl 5 '13

Balloons and air-ships—Continued.

- Comparison of French and German strength in dirigible airships. *il Sci Am* 109:126 Ag 16 '13
- Destruction of the German dirigible L. Z. 15. C. Dienstbach. *Sci Am* 108:313 Ap 5 '13
- Dissecting a military dirigible airship V1. A. Gradenwitz. *il Sci Am* 109:164 Ag 30 '13
- Future of the dirigible. *Sci Am* 109:271 N 15 '13
- Journey in a Zeppelin: impressions of a trip in the airship Viktoria Luise. C. Dienstbach. *il Sci Am* 108:419 My 17 '13
- Lessons of the disaster of the "L. H." C. Dienstbach. *il Sci Am* 109: 340 N 1 '13
- Loss of the Zeppelin L-1. *Sci Am* 109:226 S 20 '13
- Manufacture of hydrogen gas for spherical balloons: portable plants for military use. *il Sci Am* 109:452 D 13 '13
- Naval airship. C. Dienstbach. *Sci Am* 109: 378 N 15 '13
- Over Germany in an airship: Viktoria Luise. *il Eng Rec* 68:245-7 Ag 30 '13
- Progress in landing Zeppelins. C. Dienstbach. *Sci Am* 109:291 O 11 '13
- Spherical balloons. R. H. Upson. *Stevens Ind* 30: 301-10 O '13
- Wreck of the first German naval airship L.1. C. Dienstbach. *Sci Am* 109:266 O 4 '13
- See also* Aeronautics; Aeroplanes; Aviation; Hungars

Balsam

Balsam of Peru. *Sci Am* 109:493 D 27 '13

Baltimore, Maryland

Baltimore high-pressure fire service. J. B. Scott. *il diags Am Soc M E J* 35:371-419 Mr '13

Architecture

Cathedral of the Incarnation. *il plans Arch Rec* 33:476-91 Je '13

Sanitary affairs

Covering of Jones' Falls, Baltimore, Md. *il map Eng N* 70:2-8 Jl 3 '13

Public baths of Baltimore. J. Graham. *il Dom Eng* 65:400-3 D 27 '13

Streets

Building a highway on a sewer. *il Sci Am* 109:139 Ag 16 '13

Baltimore & Ohio railroad

B. & O. exhibit at Wheeling, W. Va., celebration. *il Ry & Eng R* 53:753-4 Ag 9 '13

Baltimore & Ohio flood reconstruction. *il Ry Age* 55:106-9 Jl 18 '13

Cumberland terminal. R. C. Powers. *il plan Ry Age (Mech ed)* 87:591-3 N '13

57th annual report, for year ending June 30, 1913. *Ry Age* 55:1050-2 N 28 '13

Increased earnings of B. & O. map *Ry Age* 55: 1007-8 N 28 '13

Locomotive terminal, Cumberland, Md. *il Ry & Eng R* 53:49-50 O 11 '13; *Ry Age* 55:709-11 O 17 '13

Road department improvements. *Ry & Eng R* 53:221 Mr 15 '13

2d staff meeting of officials, Deer Park, Md., Sept., 1913. *Ry & Eng R* 53:931-2 O 4 '13

Baltimore United railways & electric company

Annual report for 1912. *Elec Ry J* 41:776-7 Ap 26 '13

Balusters, Concrete

Problem solved in casting bridge balusters successfully. *Concrete Cem* 3:35 Jl '13

Banff-Windermere motor road. il Eng Rec 68: 630-1 D 6 '13**Bank buildings**

Electric wiring and illumination of the Continental and commercial bank bldg., Chicago. *il diag Elec W* 62:189-94 Jl 26 '13

Emigrants' industrial savings bank, N. Y. R. F. Almirall. *il Arch & Bldg* 45:17-24 Ja '13

Guaranty trust company building, New York. *il Arch & Bldg* 45:486-93 D '13

Structural features of the Continental & commercial national bank, Chicago. plans *Eng N* 70:976-81 N 13 '13

Bank notes

Protection against bank note raising and forgeries. *il Sci Am* 109:247 S 27 '13

Bank protection. See Canals; Rivers—Regulation**Banking law**

New currency law. *Ry & Eng R* 53:1190-1 D 27 '13

Banks and banking

Account analysis in commercial banks. H. C. Thompson. *J Account* 16:210-29 S '13

Banking influence on railroad management. *Ry Age* 55:443-4 S 12 '13

Control of banking over industry. A. L. Brodhead. *Eng N* 69:323-4 F 13 '13

Control of banking over industry. *Eng N* 69: 176-8 Ja 23 '13

Proposed currency legislation. F. A. Vanderlip. *Iron Age* 92:1216-8 N 27 '13

See also Bank buildings; Bank notes; Banking law; Building and loan associations; Discount; Foreign exchange; Interest

Barges

Cost of steel vs. wood for river barges. A. E. Hageboeck. *Eng N* 69:321-2 F 13 '13

See also Motor barges

Barges, Concrete

Reinforced concrete barge in service. *il Concrete Cem* 2:93 F '13

Barges, Motor. See Motor barges**Barium**

Manufacture of barium compounds in Germany. *Eng & Min J* 96:248-9 Ag 9 '13

Barographs

Measurement of the true static pressure in a moving fluid—application to an aeroplane barograph. A. F. Zahm. *J Fr Inst* 175:503-9 My '13

Barometer

Aneroid barometers: from report of the Director of the Bureau of standards. *J Fr Inst* 175:329-30 Mr '13

Meaning of a change of two inches in the barometer. A. F. Miller. *Sci Am* S 76:272 O 25 '13

Mercurial and aneroid barometers. *Colliery* 33:572 My '13

Use of the barometer in mining. W. H. Hammon. *Colliery* 33:645 Je '13

Use of the barometer in mining. F. Z. Schellenberg. *Colliery* 33:590-1 My '13

Barometers, Human. Sci Am 108:556 Je 21 '13**Barometric pressure. See Atmospheric pressure****Barracks**

Half mile of concrete barracks. R. M. Beanfield. *il Concrete Cem* 3:164-7 O '13

Barytes

Barytes industry of Cole county, Mo. F. C. Bryant. *Eng & Min J* 95:317-8 F 8 '13

Bascule bridges. See Bridges, Bascule**Baseball indicators**

Mechanical baseball bulletin boards. *il Sci Am* 109:285-6 O 11 '13

New baseball indicator. G. E. Mitchell. *il Sci Am* 109:109 Ag 9 '13

Basements

Building a house of moderate cost. R. C. Spencer, jr. *il Arch Rec* 33:156-62 F '13

Bath tubs

Design in plumbing fixtures: bath tubs. F. W. Tower. *diags Dom Eng* 65:76-7 O 18 '13

Bath tubs, Portable

Portable bath tubs—their use in hospitals. *il Dom Eng* 62:275-6 Mr 8 '13

Bathrooms

New built-in sanitary bathroom. *il Dom Eng* 64:335-6 S 20 '13

Baths, Public

Public baths of Baltimore. J. Graham. *il Dom Eng* 65:400-3 D 27 '13

Baths and bathing

Bath house at Cameron colliery, Shamokin, Pa. *il Colliery* 33:679-80 Jl '13

Bath house proposition. J. E. Butler. plan *Colliery* 33:481 Ap '13

Baths and bathing - *Continued.*

Bathing facilities in industrial plants; physiological benefits of hot and cold baths. T: Dartington. *il Eng M* 46:428-30 D '13
Design in plumbing fixtures; bath tubs. F. W. Tower. *diags Dom Eng* 65:76-7 O 18 '13
See also Bathrooms; Baths, Public

Batik

Electric batik work. A. Gradenwitz. *il Sci Am* 108:584 Je 28 '13

Batteries

Fort that travels on wheels; Schneider mobile batteries for coast defense. *il Sci Am* 109:469 D 20 '13

Batteries, Electric. *See* Electric batteries; Storage batteries

Batti Wallahs society

Society of sea-going electrical engineers. *Int Marine Eng* 18:538 D '13

Battle cruisers. *See* Warships

Battlefield relief. *See* First aid in illness and injury; Medicine, Military; Military hygiene

Bauxite

Bauxite near Elizabethtown, Tenn. J. H. Watkins. *il Eng & Min J* 95:601-5 Mr 22 '13
Production of bauxite and aluminum. *Eng & Min J* 96:778 O 25 '13

Beaches

Prize design for Coney Island beach reclamation. *plan Eng N* 70:304-5 Ag 14 '13
Problem in beach reclamation at Coney Island and a prize for its solution. *plan Eng N* 69:351 F 20 '13

Beacons. *See* Lightships**Beams.** *See* Girders**Bearings (machinery)**

Babbittin car journal brasses. E. H. Morey. *il Am Eng* 87:267-8 My '13
Bearing metal. A. P. Wright. *Metal Ind n s* 11:245-6 Je '13
Development in plain bearings. *Iron Age* 91:1262 My 22 '13
High-speed bearings. *Ind Eng* 13:191-2 Ap '13
Intermediate supports for long shafts. W. G. Dunkley. *diags Mach* 19:363-4 Ja '13
Kingsbury thrust bearing. *il plan Power* 37:667 My 13 '13
Oil-pressure thrust bearing. *diags Elec W* 61:1272-3 Je 7 '13
Power consumption in bearings. *Eng & Min J* 96:405-6 Ag 30 '13
Retainers improved in special bearings. *Automobile* 28:442-3 F 6 '13
Study of bearing metals and testing methods. T. D. Lynch. *il Foundry* 41:291-4 J1 '13; *Same, Metal Ind n s* 11:295-8 J1 '13
Temperature tests on journal bearings. A. M. Bennett. *Power* 37:848-9 Je 17 '13
Test of thrust bearing on large water wheel. *Eng Rec* 67:75 Ja 18 '13
Water wheel thrust bearing. *il plans Eng Rec* 67:44-5 Ja 11 '13
See also Ball bearings; Lubrication and lubricants; Roller bearings

Beatty-Guggenheim case. *Eng & Min J* 96:84-6 J1 12 '13

Beatty-Guggenheim case. H: Wollman. *Eng & Min J* 96:223-6 Ag 2 '13

Beech

Uses of commercial woods of the United States. H. Maxwell. *U S Agric Bul* 12:2-11 '13

Beet sugar. *See* Beets and beet sugar**Beets and beet sugar**

Distribution of sugar in the beet root. *Sci Am S* 76:16 J1 5 '13
Sugar beet in its relation to other crops. T. G. Palmer. *il Sci Am S* 75:237-40 Ap 12 '13

Belgium**Industries and resources**

How the Belgian iron industry maintains itself under international competition. *Eng N* 70:717-8 O 9 '13

Bell, Alexander Graham, 1847-

Pioneers in telephone engineering. T: A: Watson. *il Sci Am S* 75:216-7 Ap 5 '13

Bell buoys. *See* Buoys**Belmont, Oliver Hazard Perry, 1858-1908**

Revival of French Gothic architecture: a mausoleum after St. Hubert's chapel. L. R. McCabe. *il Arch Rec* 34:202-12 S '13

Belt lacing

Making steel wire belt lacing. *il Mach* 20:194-6 N '13

Belt shifters

Dash-pot belt shifter. J. F. Hobart. *il Elec W* 61:530 Mr 8 '13
Electric belt shipper. A. P. Broadhead. *plan Elec W* 61:460 Mr 1 '13
Safety type of belt shifters. F. A. Barker. *diags Am Ind* 13:sup 1-4 My '13

Beltng

Belt maintenance to improve production. D. Wilcox. *Ind Eng* 13:465-6 N '13
Care and repair of rubber belts. R. Moore. *diags Power* 38:145-6 J1 22 '13

Care of rubber belts. *diags Eng & Min J* 96:355-6 Ag 23 '13

Comment on direction in which belts tend to run off pulleys. J. R. Rand. *il Mach* 19:472 F '13

Do belts run to the high side of pulleys? G: P. Pearce. *Mach* 19:387 Ja '13

Obsolete belt drive in power stations. A. Kennedy. *Elec W* 61:581 Mr 15 '13

Pulling power of slack belts. R. T. Kent. *Ind Eng* 13:203-6 My '13

Reasons for the running of belts. A. I. Jacobs. *il Mach* 19:627-8 Ap '13

Safeguarding belts, shafts and pulleys. *Ind Eng* 13:523-4 D '13

Troubles of high-speed belt drives. J. A. Seager. *diags Power* 38:917-8 D 30 '13

See also Belt lacing; Belt shifters; Power transmission; Pulleys; Rope driving; Shafting

Beltng, Steel

How flexible steel beltng is manufactured. *il Iron Tr R* 53:329-31 Ag 21 '13

Benbow (battleship)

British battleship Benbow. *Int Marine Eng* 18:125 Mr '13

Bending devices

Devices for bending plates. C. T. Rice. *il diag Eng & Min J* 96:161-2 J1 26 '13

Bending machines

Power bending machine. *il Concrete Cem* 2:204 Ap '13

Bending wood. Industrial methods of. *Sci Am S* 76:160 S 6 '13

Benefit societies

Ten-cent protective system. D. McKillop. *Mach* 19:552-3 Ag '13

See also Building and loan associations

Benzene

Electrification of benzene by friction. *Sci Am S* 75:199 Mr 29 '13

Benzoic acid

Benzoic acid as an acidimetric standard. G: W. Morey. *U S Bur Stand Bul* 8:613-50 Mr 1 '13

Benzoic acid as standard material. *Eng & Min J* 96:835-6 N 1 '13

Benzol

Benzol beats gasoline in economy test. *Automobile* 28:1127 My 29 '13

Benzol—how it is recovered from coal gas. F. Pening. *il Iron Tr R* 53:625-32 O 9 '13
Problem of the world's oil supply. *Sci Am* 108:325 Ap 5 '13

Bergen, Norway

Samnanger hydroelectric plant. *il map plan Eng Rec* 67:329-31 Mr 22 '13

Berkshire street railway

Recent improvements. *il plans Elec Ry J* 12:1170-7, 1270-4 D 6, 20 '13

Berlin, Germany**Politics and government**

Verband Gross-Berlin, a new form of metropolitan government. *Eng N* 70:310 Ag 14 '13

Berlin, Germany—*Continued.***Rapid transit**

Rapid transit development in Berlin and New York: subway and elevated lines. maps
Elec Ry J 42:377-9 S 6 '13

Streets

Berlin's splendid automobile streets. il Auto-mobile 29:186-7 J1 31 '13

Bern, Switzerland**Bridges**

Halen reinforced-concrete bridge. il plans
Eng N 70:531-7 S 13 '13

Bernese Alps railway

Lötschberg or Bernese Alpine railway. A. Gradenwitz. il Sci Am 108:452-3 My 17 '13
Lötschberg railway in Switzerland and the older Lecco-Colico line in northern Italy. L. Bell. il Elec Ry J 42:374-6 S 6 '13
New Alpine railway. il Sci Am S 75:308 My 17 '13

Bessemer process

Can the Bessemer steel industry be saved?
Met & Chem Eng 11:119 Mr '13

See also Steel

Bethlehem steel corporation

Attractive yards of the Bethlehem steel co. il Iron Tr R 52:464-7 F 20 '13
Bethlehem co. purchases shipbuilding plant, Quincy, Mass. il Iron Tr R 52:998 My 1 '13
Extensive building plans of Bethlehem steel co. Iron Tr R 52:164-5 Ja 9 '13
Extent of the Chilian iron ore deposits. map Iron Tr R 52:459-62 F 20 '13
Great ore deposits acquired by Bethlehem co. il map Iron Tr R 52:268-9 Ja 23 '13
Tofo iron mines in Coquimbo, Chile. Iron Age 91:427 F 13 '13

Betterment, industrial. See Industrial betterment

Bevel gearing. See Gearing, Bevel

Bibliography

Need of a bibliographical institute. A. G. S. Josephson. Sci Am 108:431 My 10 '13

See also Indexes; Periodicals—Indexes

Bicycles and tricycles

Renaissance of the bicycle. Sci Am 109:106 Ag 9 '13

See also Motor cycles; Multicycles

Billiard rooms

Ordinance governing billiard rooms. Munic Eng 45:140-1 Ag '13

Billiter alkali-chlorine cells. A. J. Allmand. il Met & Chem Eng 11:19-21 Ja '13

Billiter-Siemens cell. See Electric batteries

Bins. See Ore bins

Biography

See also Physicians and surgeons

Biological inventions: patenting life processes for industrial uses. Sci Am S 76:226-7 O 11 '13

Biological laboratories

Laboratory for investigations of underground life. A. Gradenwitz. il Sci Am 109:408 N 29 '13

Birch

Uses of commercial woods of the United States. H. Maxwell. U S Agric Bul 12: 11-32 '13

Birds. Protection of

Federal regulations for protection of migratory birds. Sci Am 109:66 J1 26 '13

Birth rate

Birth rate and military armaments. S. J. M. Low. Sci Am S 75:343, 370-1 My 31, Je 14 '13

Disulphide of carbon. See Carbon disulphide

Bitumen. See Asphalt

Bituminous materials

Characteristics and differentiation of native bitumens and their residuals. C. Richardson. Eng Rec 67:466-8 Ap 26 '13

Determining the consistency of bituminous materials. Eng Rec 67:192-3 F 15 '13

See also Asphalt; Pavements

Bituminous roads. See Roads, Bituminous

Black Hills

Lithia deposits of the Black Hills. V. Ziegler. il Eng & Min-J 96:1053-6 D 6 '13

Black powder

Analysis of black powder and dynamite. W. O. Snelling and C. G. Storm. il U S Bur Mines Bul 51:66-76 '13

Blackdamp

Gases met with in coal mines. Colliery 33: 447-8 Mr '13

Blacksmithing

International railroad master blacksmiths' assn. 21st annual convention: papers. Ry Age (Mech ed) 87:485-94 S '13; Same cond. Ry Age 55:369-70 Ag 29 '13
Pittsburgh & Lake Erie railroad's blacksmith shop. H. Emerson. Eng M 45:174-6 My '13
Underground blacksmith shops. plan Eng & Min J 96:592-3 S 27 '13

See also Forging; Welding

Blast furnace gas

Apparatus for catching cinders in gases. il diag Iron Age 92:547-9 S 11 '13; Same. Sci Am S 76:316-7 N 15 '13

Blast furnace and coke oven gases. Iron Age 92:669 S 25 '13

Cleaning blast-furnace gas. F. H. Wagner. Power 37:861 Je 17 '13

Cleaning blast furnace gas. J. A. Seager. plans Iron Tr R 52:416 F 13 '13

Cleaning of blast furnace gas. Iron Age 91: 1292 My 29 '13

Cleaning of blast-furnace gas. W. A. Forbes. diags Am Inst Min E Bul 82:2477-2514 O '13; Discussion. 84:2953-86 D '13

Determining heat value of blast furnace gas. J. P. Mowat. Iron Tr R 52:27-9 Ja 2 '13

Dust determinations for blast-furnace gas. E. Brown. plan Power 37:670-1 My 13 '13

Electrical fume-precipitation. R. Peters. jr. Am Inst Min E Bul 73:151-2 Ja '13

Gas washers at the central furnaces. diags Eng & Min J 95:180-2 Ja 18 '13

Practical operation of gas engines using blast-furnace gas as fuel. C. C. Sampson. diags Am Soc M E J 35:767-86 My '13; Same. Iron Age 91:1120-3 My 5 '13; Same. Iron Tr R 52:1120-4 My 15 '13; Same. Sci Am S 76:185-7 S 20 '13; Same cond. Power 37:821-3 Je 10 '13; Discussion. F. H. Wagner. Am Soc M E J 35:1276-9 Ag '13

Purification of blast furnace gases. C. Herwegh. il Met & Chem Eng 11:399-403 J1 '13

Uses of blast furnace and coke oven gases: their practical application at the Cockerill works in Belgium. Iron Age 92:608-10 S 18 '13

Blast furnaces

Blast furnace progress in Scotland. Iron Age 92:1328-9 D 11 '13

Blast furnace slag analyses for 24 hours. F. L. Grammer. Iron Age 91:716 Mr 20 '13; Same. Am Inst Min E Bul 75:475-7 Mr '13; Same. Iron Tr R 52:971 Ap 24 '13

Blowing in an iron blast furnace. R. H. Sweetser. diag Eng & Min J 95:427-9 F 22 '13; Same. Iron Tr R 53:169-71 J1 24 '13; Discussion. Am Inst Min E Bul 77:895-903 My '13

Cement for blast furnace hearth and bosh. S. H. Chauvenet. Iron Tr R 52:580-1 Mr 6 '13

Cement instead of fire clay. Iron Age 91:429 F 13 '13

Cement mortar in hearth and boshes of blast furnace. Concrete Cem 2:220 My '13

Chart for use in connection with wet and dry bulb thermometers in making psychrometric determinations. C. P. Linville. Am Inst Min E Bul 82:2533-6 O '13

Construction of blast furnaces proceeds slowly. B. E. V. Luty. Iron Tr R 52:123-4 Ja 2 '13

Development of blast-furnace construction at the Boston & Montana smelter. J. A. Church. jr. diags Am Inst Min E Bul 79: 1367-88 J1 '13

Development of the American water-jacket lead blast-furnace. R. C. Canby. Am Inst Min E Bul 75:363-8 Mr '13

Drying air for the blast furnace. diags Iron Age 92:654-5 S 25 '13

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- Economy of dry blast. Eng & Min J 96:300 Ag 16 '13
- Economy of dry blast. Iron Age 91:1183-4 My 15 '13
- Experiments with an oil-burning shaft furnace. A. L. Waters. il Eng & Min J 96:203-5 Ag 2 '13
- Five-ton smelting furnace that smelts. R. P. Jarvis. Eng & Min J 95:1159-60; 96:415 Je 7, Ag 30 '13
- Five-ton smelting furnace that smelts: Part-ridge furnace. C. H. Mace. plan Eng & Min J 95:909-10, 1303-4 My 3, Je 28 '13
- Gas-driven blowers at Bethlehem steel co. A. West. Iron Age 91:1303-5 My 29 '13; Same. Iron Tr R 52:1400-3 Je 19 '13
- Gas engines in blast furnaces and steel plants. H. J. Freyn. Iron Tr R 52:1242-8 My 29 '13; Same cond. Iron Age 91:1299-1302 My 29 '13
- Gayley dry blast process. H. M. Howe. Met & Chem Eng 11:147-8 Mr '13
- How blast furnace flue dust can be utilized. E. B. Clark; with discussion by J. W. Dougherty. Iron Age 92:1108-12 N 13 '13; Same. Iron Tr R 53:1050-5 D 11 '13
- Investigations of blast furnace operations. Met & Chem Eng 11:699-704 D '13
- Iron blast furnace and the characteristics of its fuels. J. E. Johnson, jr. Met & Chem Eng 11:687-93 D '13
- Iron breakouts in blast furnaces. diag Iron Age 91:822-3 Ap 3 '13
- Latest blast furnace at Youngstown, Ohio. il Iron Age 92:962-4 O 30 '13
- Lining blast furnaces. C. A. Tupper. diags Iron Tr R 53:411-3 S 4 '13
- Maryland steel company's new blast furnace at Sparrows Point, Md. plans Iron Age 91:242-5 Ja 23 '13; Same. Iron Tr R 52:254-8 Ja 23 '13
- New blast furnace at Port Colborne, Ont. il map Iron Age 92:718-9 O 2 '13
- New type of blast furnace construction. J. E. Johnson, jr. il plan Met & Chem Eng 11:39-43 Ja '13; Same. Am Inst Min E Bul 75:349-62 Mr '13; Same cond. Eng M 44: 953-5 Mr '13
- Nodulized ore in the blast furnace. R. H. Lee. Am Inst Min E Bul 82:2515-22 O '13; Discussion. 81:2864-9 D '13
- Oxygen in blast-furnace practice. G. Trasenster. Iron Age 92:569 S 11 '13; Same. Sci Am S 76:345 N 29 '13; Same cond. Iron Tr R 53:853-1 N 6 '13
- Pig iron and its method of manufacture. J. J. Porter. il Iron Tr R 52:61-75 Ja 2 '13
- Preparing Cuban ore for blast furnace use. R. B. Gerhardt. Iron Tr R 52:364-6 F 6 '13
- Reactions in the blast furnace. Iron Age 92: 1167-8 N 20 '13
- Reclamation of flue dust for furnace use. A. F. Plock. Iron Tr R 52:1017-8, 1063-5 My 1-8 '13
- Story of the dry-blast process. J. Gayley. Met & Chem Eng 11:71-4 F '13
- Thermal effect of blast-furnace jackets. R. P. Roberts. Am Inst Min E Bul 79:1343-66 Jl '13
- Turbo blower as a help to the blast furnace. R. H. Rice. Iron Age 91:1305, 1330-1 My 29 '13
- Youngstown sheet & tube co.'s furnace plant. il plans Iron Tr R 53:771-6 O 30 '13
- See also* Bag-houses; Blast furnace gas; Cast iron; Coke ovens; Cupola furnaces; Iron metallurgy; Iron works; Refractory materials; Slag

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- Automatic furnace hoists at Monessen, Pa. il diags Iron Age 92:1210-1 N 27 '13
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- Proposed method of charging flue dust without sintering. J. W. Dougherty. diag Iron Age 92:1111-2 N 13 '13
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- Blasting coal. T. C. Wakefield. Colliery 33: 647-8 Je '13
- Blasting irons for shaft sets. plan Eng & Min J 95:999 My 17 '13
- Blasting pole holes. il Eng & Min J 96:1219 D 27 '13
- Blasting with liquid air. il Sci Am 108:564 Je 21 '13
- Churn drill holes for blasting. Eng & Min J 96:351 Ag 23 '13
- Comparative safety of electric and fuse blasting. Eng & Min J 95:1014 My 17 '13
- Drilling and blasting methods. E. M. Weston. il Eng & Min J 95:419 F 22 '13
- Exploding powder blasts with central-station energy. E. C. Arnold. Elec W 61:202-3 Ja 25 '13
- Prevention of missed fires in blasting. plan Eng N 69:522 Mr 13 '13
- Prevention of missed fires in blasting. W. H. Mason. Am Soc M E J 35:276-8 F '13
- Products of explosion. Eng & Min J 96:213-4 Ag 2 '13
- Rules for misfires in blasting. Eng N 70: 1227 D 18 '13
- Safe handling of missed holes. Eng & Min J 96:1020-1 N 29 '13
- Safety rules—blasting. Eng & Min J 96:259-60 Ag 9 '13
- See also* Coal mines and mining—Explosives; Detonators; Dynamite storage; Explosives; Mines, Military; Mining engineering
- Blasting caps**
- Monkeying with the buzzsaw. C. Bulger. Eng & Min J 96:535-6 S 20 '13
- Blind**
- English multicycles for the blind. F. C. Perkins. il Sci Am 108:352 Ap 19 '13
- Training the sightless: the Light-house. W. L. Beasley. il Sci Am 108:448 My 17 '13
- Block signal and train control board**
- Block signaling and train control report. Eng N 69:387-90 F 20 '13; Same. Sci Am S 75: 365-7 Je 7 '13
- Final report. Ry Age 54:292-5 F 14 '13
- Final report, 1912. Ry & Eng R 53:191-3, 213-5 Mr 1-8 '13
- Block signals. See** Railroads—Signals
- Blood**
- Ancient and modern research of the blood. Sci Am 109:138 Ag 23 '13
- Blood parasites, foes of mankind. H. G. Plimmer. Sci Am S 76:141-2 Ag 30 '13
- Blunders made by nature: disease of the respiratory tract and circulation. A. Maverick. Sci Am S 76:171-2 S 13 '13
- Our life blood: family likeness in biological species laid bare by blood tests. il Sci Am S 76:124-5 Ag 23 '13
- Blood-pressure**
- Effect of humidity, temperature and barometric pressure on the blood-pressure. B. R. Hoobler. Heat & Ven 10:17-21 Ja '13
- Blowers**
- Centrifugal blower for high pressures: discussion of paper by H. F. Schmidt. Am Soc M E J 35:1099-1141 Jl '13
- Construction and operation of turbo-blowers and compressors. F. zur Nedden. il Eng M 44:35-9, 199-203 O-N '12
- Coppus turbo blower. il Power 37:203 F 11 '13
- Gas-driven blowers at Bethlehem steel co. A. West. Iron Age 91:1303-5 My 29 '13; Same. Iron Tr R 52:1400-3 Je 19 '13
- Myers improved boiler-tube blower. diag Power 38:744-5 N 25 '13
- Southwark engine of United Verde copper co. settled ten feet but kept on running. T. Peacock. il Power 38:392-3 S 16 '13; Same. Eng & Min J 96:600-1 S 27 '13
- Turbo blower as a help to the blast furnace. R. H. Rice. Iron Age 91:1305, 1330-1 My 29 '13
- Worthington turbo blowers and compressors. il Power 37:12-3 Ja 7 '13
- See also* Fans, Mechanical; Mechanical draft; Mine ventilation; Ventilation

- Blowpipe**
Why a blowpipe backfires. A. H. Israel. *Am Mach* 38:747-8 My 1 '13
- Blue**
Floral blue. P. Q. Keegan. *Sci Am S* 75:323 My 24 '13
- Blue print paper**
Blueprint paper, its manufacture and some of its characteristics. F. B. Hays. *il Sci Am S* 75:45-6 Ja 18 '13
- Blue printing**
Blueprint frames. *plan Eng & Min J* 95:1050 My 24 '13
Cost data on blueprinting. F. H. Jones. *Eng N* 70:612 S 25 '13
Incorporating details on the blueprint. F. W. Shaw. *Am Mach* 38:874 My 22 '13
Make your own blue prints. F. H. Commander. *il Munic Eng* 45:243-5 S '13
- Blue-printing machinery**
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- Blue prints**
Making colored photographic reproductions with the aid of blue prints. *Sci Am* 109:501 D 27 '13
- Blue sky legislation.** See Securities
- Blythe, California**
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- Boat racing.** See Motor boat racing
- Boathouses**
Concrete pontoons for a boathouse. D. C. Findlay. *il plan Concrete Cem* 3:127-9 S '13
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- Boats, Concrete**
500-ton reinforced-concrete scow. C. E. Sudler. *il plan Eng N* 69:466-7 Mr 6 '13
- Bodker, Albert Joseph**
Recent work by Albert Joseph Bodker. C. M. Price. *il Arch Rec* 33:381-423 My '13
- Bodoni, John Baptist, 1740-1813**
Printers of note. W. C. Bleloch. *Inland Ptr* 51:55-6 Ap '13
- Boiler cleaning**
Influence of soot on boiler economy. H. D. Fisher. *Power* 38:816-7 D 9 '13
Novel boiler-cleaning arrangement. *il Power* 38:121 Ji 22 '13
Nozzles for washing boilers. A. E. Bornmann. *il Power* 38:480 S 30 '13
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- Boiler efficiency.** See Boilers—Efficiency meters; Boilers—Testing
- Boiler explosions**
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Boiler explosions May-July, 1913. *Locomotive* 29:281-6 O '13
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Deadly monoxide. H. R. Callaway. *Power* 37:385-6 Mr 18 '13
Deadly monoxide. L. H. Morrison; H. R. Callaway. *Power* 37:720 My 20 '13
Staten Island boiler explosion. *Elec Ry J* 42:1023 N 8 '13
Staten Island boiler explosion. *il Power* 38:663-4 N 4 '13
Two serious explosions of cast iron heating boilers. *il Locomotive* 29:137-9 Ja '13
- Boiler inspection**
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Boiler inspection in England. *Power* 37:903-4 Je 24 '13
Civil service examination for acting chief inspector of boilers, Massachusetts. *Power* 37:292-3 Mr 4 '13
- Rules for boiler inspection. J. C. Hawkins. *Power* 38:190-1 Ag 5 '13
To prepare a boiler for inspection. *Locomotive* 29:110-2 Ja '13
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- Boiler piping**
Safe piping for boiler plants. C. L. Ware. *plan Power* 37:540 Ap 15 '13
- Boiler plants**
Boiler plant of American sugar co., South Boston, Mass. E. F. Learned. *il plan Power* 38:524-6 O 14 '13
How many boilers to operate. G. B. Mulloy. *Power* 37:408-9 Mr 25 '13
Hydraulic hanging press and boiler construction equipment. *il Sci Am S* 76:337 N 29 '13
Management in the boiler room. *Iron Age* 92:1342-3 D 11 '13
Modern boiler-room operation. W. A. Blanck. *Power* 38:812-3 D 9 '13
Power generation and transmission. *il Elec Ry J* 42:543-8 O 4 '13
Quick-firing arrangement of boilers to relay water-power. *il Elec W* 62:1170-1 D 6 '13
Storage of oil fuel. R. T. Strohm. *diags Elec W* 62:1277-9 D 20 '13
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Well-designed rolling mill boiler plant. *il plan Iron Tr R* 52:1347-8 Je 12 '13
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- Boiler scale**
Boiler scale. J. Bailey. *Power* 37:235-6 F 18 '13
Interesting boiler experience. E. S. Cooley. *Power* 37:95-6 Ja 21 '13
Luminator as boiler scale preventive. E. E. Basch. *Am Soc M E J* 35:234-6 F '13
New light on the chemistry of boiler scale prevention. E. T. Wherry and G. S. Chiles. *Eng M* 45:518-23 Ji '13
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Scaling of locomotive boilers. *Ry Age (Mech ed)* 87:295-6 Je '13
- Boiler tubes**
Boiler tube failures. *Power* 38:340 S 2 '13
Boiler-tube failures. A. E. Krause. *Power* 38:545 O 14 '13
Boiler-tube failures. J. E. Terman. *il Power* 38:241 Ag 12 '13
Boiler tube rack. C. M. Newman. *diags Ry Age (Mech ed)* 87:606 N '13
Buckling of boiler tubes. J. E. Terman. *Power* 37:614 Ap 29 '13
New list of steel boiler tube schedules of weights and prices adopted by Charcoal iron boiler tube makers. *Iron Tr R* 52:142 Ja 9 '13
Removing soot and other deposits from boiler tubes. *il Elec W* 62:1336-7 D 27 '13
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- Boilers**
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Bettington dust-fuel boiler. H. V. Hart-Davis. *il Eng M* 44:936-8 Mr '13
Blowing-off of steam boilers. W. Hopf. *Am Soc M E J* 35:1442-4 S '13
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- Distribution of heat in the operation of steam boilers. P. Barker. Sci Am S 76:210-1 O 4 '13
- Economies in running the boiler fire. W. M. Faber. Il Iron Age 92:844-5 O 16 '13
- Effect of peak load on boiler operation. Power 38:768-9 N 25 '13
- Electrically controlled draft regulation for steam boilers. Il Elec W 61:209-10 Ja 25 '13
- Electrolytic prevention of boiler corrosion. Power 37:705 My 20 '13
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- Foaming boilers. Power 38:271-2 Ag 19 '13
- Fortunately contrary boiler. C. H. Beach. Power 38:581-2 O 21 '13
- Further operation of large Stirling Delray boilers. J. W. Parker. Power 38:936-8 D 30 '13
- Generation of steam by waste heat from furnaces. F. Peter. diags Am Inst Min E Bul 84:2782-96 D '13
- Grinevetski method of graphical analysis of the working process in a steam boiler. W. N. Polakov. Am Soc M E J 35:1758-63 D '13
- Heat balance. Power 38:550-1 O 14 '13
- Heat balance in steam boilers. L. S. Marks. Power 37:42-7 Ja 14 '13
- Horizontal tubular-boiler setting. plans Elec W 61:1099-1100 My 24 '13
- Kroeschell boiler. diags Power 38:124 JI 22 '13
- Manifold and mixer for CO₂ recorders. M. B. Smith. diags Power 38:296-7 Ag 26 '13
- Master boiler makers' assn.: addresses at 7th annual convention. Chicago, May, 1913. Ry Age (Mech ed) 87:314-6 Je '13
- New arrangement of heating boilers. A. Gradenwitz. Il Power 37:21-2 Ja 7 '13
- New steam boiler constructions in steam turbine plants. F. Münzinger. Am Soc M E J 35:338-9 F '13
- Operating boilers under difficulties. F. J. Raylin. Il Power 38:352-3 S 9 '13
- Operation of low pressure heating boilers. plan Locomotive 29:142-5 Ja '13
- Operation of 2365-hp boilers at Detroit. diag Elec W 62:1149-50 D 6 '13
- Pitting of boilers due to furnace. H. Miso-stow. Power 38:376 S 9 '13
- Proceedings of 25th annual meeting of Am. boiler manufacturers' assn., Cleveland, O., Sept. 1-4, 1913. Iron Age 92:591-2 S 11 '13
- Pulverized fuel for boiler firing. C. H. Wright. Il plan Elec W 61:567-9 Mr 15 '13
- Recent developments in boiler construction. diags Ind Eng 13:273-7 Je '13
- Reinforced lap joint problem. S. R. Wing. plan Power 37:351-2 Mr 11 '13
- Revelations of some damaged boilers. Power 38:298 Ag 26 '13
- 7th annual convention of the Master boiler makers' assn., Chicago, 1913. Ry Age 54:1190-3 My 30 '13
- 7th annual convention of Master boiler makers' assn., Chicago, May, 1913. Ry & Eng R 53:501-2, 510 My 31 '13
- Small vertical boiler of high capacity. C. F. Prescott. diag Power 38:72-3 JI 8 '13
- Standardization of boiler-stoker installations. J. G. Worker. Power 38:500 O 7 '13
- Steam-boiler efficiencies. A. Bement. Power 37:876-7 Je 17 '13
- Strain on stay-bolt. H. D. Fisher. Power 38:343 S 2 '13
- Stresses in unsymmetrical boiler joints. plan Power 37:518-21 Ap 15 '13
- 25th annual convention of the American boiler manufacturers' assn., Cleveland, Ohio, Sept., 1913. Power 38:417-8 S 16 '13
- Utilization of the waste heat of regenerative furnaces. G. C. Stone. Am Inst Min E Bul 82:2101-2 O '13; Discussion. 84:2893-8 D '13
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- Blonck boiler efficiency meter. Il plan Ind Eng 13:179-81 Ap '13
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- New flue-gas recorder: action and efficiency of the Ward carbon dioxide instrument. Il Eng M 45:744-6 Ag '13
- Simple CO₂ meter. diag Ind Eng 13:319 JI '13

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- Progress in boiler, tank and plate shops. C. A. Tupper. Il Iron Age 92:1427-30 D 25 '13
- Shop costs of boiler and plate work. W. C. Connelly. Iron Age 92:614-5 S 18 '13

Safety measures

- Preventing steam boiler accidents. Ind Eng 13:480-1 N '13
- Safety rules—boiler erection. Eng & Min J 96:355 Ag 23 '13
- Safety rules—boiler repair and operation. Eng & Min J 96:547 S 20 '13

Specifications

- Plea for uniform boiler specifications. T. E. Durban. Iron Age 92:565-7 S 11 '13
- Standard tubular-boiler specifications. Power 38:748-9 N 25 '13
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- Adaptation of boiler to available coal. H. Kreisinger and W. T. Ray. diags Power 38:255-9 Ag 19 '13
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- Available CO₂ percentages. H. O'Neill. Power 38:146-7 JI 22 '13
- Boiler efficiency. Power 38:439-40 S 23 '13
- Boiler efficiency. (Engineers' study course) Power 38:445-7, 483-4, 516-7 S 23-O 7 '13
- Boiler-efficiency chart. J. C. Parker. Power 37:812-3 Je 10 '13
- Boiler tests on shipboard. H. S. Knowlton. Power 37:892 Je 24 '13
- CO₂ thermoscope. Il Power 38:428 S 23 '13
- Comments on flue-gas analysis. H. D. Fisher. Power 37:832-3 Je 10 '13
- Distribution of heat in steam boilers. Power 38:390-2 S 16 '13
- Draft and boiler capacity and efficiency. Power 37:183-4 F 11 '13
- Efficiency of steam boilers with blast-furnace and coke-oven gas firing. H. Ortmann. Am Soc M E J 35:1575-7 O '13
- Exact analysis of flue gases. diag Ind Eng 13:322-3 JI '13
- Experiments on efficient boiler operation. V. H. Carples. Power 38:140 JI 22 '13
- Experiments on efficient boiler operation. B. W. Rogowski. Power 37:799-800 Je 3 '13
- Flue-gas sampler. L. B. Case. plan Power 37:538 Ap 15 '13
- Fuel saving and smoke prevention thru the use of a smokeless firebox boiler. R. W. Hunt. Munic Eng 44:474-6 My '13
- Guarantees on steam generating units. T. A. Peebles. Power 37:148-9 F 4 '13
- Heat lost in flue gases. (Engineers' study course) Power 38:143-4, 178-9, 210-1 JI 22-Ag 5 '13
- Heine boiler tests at terminal stations. Il plan Power 37:702-3 My 20 '13
- Laboratory apparatus for the exact analysis of flue gas. Met & Chem Eng 11:254-6 My '13
- Making a flue-gas analysis. (Engineers' study course) Power 37:874-5, 911-1; 38:30-2, 68-9, 104-5 Je 17-JI 15 '13
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- Measuring water in the power plant. T. K. Roberts. *Ind Eng* 13:516-21 D '13
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 Penalties of boiler mismanagement. *Power* 38:396 Ag 26 '13
 Performance of a 450-hp. boiler with oil fuel. A. L. Menzin. *Ind Eng* N 69:1124-6 My 29 '13
 Solutions for absorbing CO₂, O and CO. C. M. Rogers. *Power* 38:600 O 28 '13; Same cond. *Ind Eng* 13:532 D '13
 Tests of a 1000-H.P. 24-tubes high B. & W. boiler; discussion of paper by B. N. Bump. *Am Soc M E J* 35:649-54 Ap '13
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Welding

- Autogenous welds for boiler work. *Ind Locomotive* 29:259-63 O '13
 Oxycetylene boiler welding. H. Cave. *Ind Power* 38:940-2 D 30 '13
 Welding of steam boilers. H. Jaeger. *Am Soc M E J* 35:1060-2 Je '13
 Welding repairs to boilers. *Sci Am S* 76:83 Ag 9 '13
 Welding steam boilers. *Power* 38:120-1 Ji 22 '13

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- Advantages of low ratio of heating surfaces to grate area in boilers. *Int Marine Eng* 18:245 Je '13
 Ballin sectional watertube marine boilers. J. B. C. Lockwood. *Ind Marine Eng* 18:517-9 D '13
 Boilers and boiler fittings. C. A. McAllister. *Ind Marine Eng* 18:122-5, 167-70 Mr-Apr '13
 Electric signal method of firing navy boilers. *Ind Sci Am* 109:396 N 22 '13
 Patching a boiler. F. Christiansen. *Int Marine Eng* 18:33-4 Ja '13
 Western river steamers, engines and boilers. E. A. Burnside. *Ind Marine Eng* 18:459-63 N '13
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Boilers, Range

- Double boiler work done by single boilers. *Plan Dom Eng* 65:111 O 25 '13
 Information about connecting range boilers. *Diags Dom Eng* 64:276, 308-9 S 6-13 '13

Boilers, Water-tube

- Adaptation of boiler to available coal. H. Kreisinger and W. T. Ray. *Diags Power* 38:255-9 Ag 19 '13
 Ballin sectional watertube marine boilers. J. B. C. Lockwood. *Ind Marine Eng* 18:517-9 D '13
 Cleaning and inspecting water-tube boilers. F. T. Ravlin. *Power* 38:349 S 2 '13
 Features of the Lemp brewing company's plant, St. Louis, Mo. *Ind Power* 38:420-3 S 23 '13
 Floor space occupied by water tube boilers. *Diags Ind Eng* 13:462-4 N '13
 Four pass boilers. G. H. Gibson. *Power* 37:272-3 F 25 '13
 Four-pass boilers. T. A. Marsh. *Diags Ind Eng* 13:333-4 Ag '13
 Four-pass boilers. L. P. St. Cyr. *Power* 37:542 Ap 15 '13
 Horizontal baffles in water tube boilers. A. A. Cary. *Plan Power* 37:328-30 Mr 11 '13
 Performance of a 450-hp. boiler with oil fuel. A. L. Menzin. *Ind Eng* N 69:1124-6 My 29 '13
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Bolivia**Industries and resources**

- Minerals of Bolivia. map *Eng & Min J* 96:636-8 O 4 '13

- South America through Yanqui eyes. *Eng & Min J* 96:623-4 Mr 22 '13
 Tin situation in Bolivia. H. Bancroft. *Am Inst Min E* 130:81:2311-27 S '13

Boll weevils

- Fighting the boll weevil east of the Mississippi. *Ry Age* 55:112 Ji 25 '13

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- Bolometer with its auxiliary galvanometer. W. W. Coldentz. *Diags U S Bur Stand Pat* 9:34-45 Mr 15 '13

Bolts and nuts

- Analyzing strength of cylinder head bolts. J. H. Rodgers. *Diags Mach* 20:56 S '13
 Automatic nut tapping machine. *Ind Iron Age* 92:1282 D 4 '13
 Jam nuts. C. Jablow. *Ind Power* 38:375 S 9 '13
 Machine forging. D. T. Hamilton. *Ind Diags Mach* 19:581-5, 707-10, 789-94 Ap-Je '13
 New expansion bolt. *Ind Eng N* 69:316 F 13 '13
 New machine for turning bolts. *Ind Iron Age* 91:1477 Je 19 '13
 Permanent security of bolted-up construction. J. B. Seymour. *Elec Ry J* 42:1104-5 N 22 '13
 Split bolt for use in inaccessible places. *Ind Elec Ry J* 41:300 F 15 '13
 Standard clamps and bolts for machining. H. C. Spillman and H. Odwallader, Jr. *Ind Diags Iron Age* 92:1017-9 N 6 '13
 Strength of eyebolts. *Ind Eng* 13:191 Ap '13
 Test of expansion-bolt shield. L. F. Johnson. *Ind Power* 38:861 D 16 '13

Bonds

- Conditions in the investment world. J. J. Hill. *Ry Age* 55:821-2 O 31 '13
 Investment in electric railway securities. A. M. Harris. *Eng M* 46:121-3 D '13
 Methods of writing off discount on bonds. G. R. Webster. *J Account* 16:169-74 S '13
 Railroad financing of the future. J. J. Hill. *Ry & Eng R* 53:1012-3 N 1 '13

Bonds, Municipal. See Municipal bonds**Bonecourt combustion. See Combustion****Bonus system**

- Bonus and rating for works executives. J. Nelson. *Iron Age* 91:1159-62 My 15 '13
 Bonus systems and the expense burden. A. H. Church. *Eng M* 46:297-16 N '13
 Discussion of reports of sub-committee on administration on present state of industrial management. *Am Soc M E J* 35:163-74 Mr '13
 Good showing under the bonus plan of pay. W. L. Myles. *Iron Tr R* 53:255-7 Ag 7 '13
 Inspection shop bonus system. P. V. See. *Elec Ry J* 42:1326 D 27 '13
 Practical principles of rational management. A. H. Church. *Eng M* 45:24-33 Ap '13
 Psychology of management. L. M. Gilbreth. *Ind Eng* 13:161-4 Ap '13
 Results from operation of the bonus plan. W. L. Myles. *Am Mach* 38:779-81 My 8 '13
 Results of incentive bonus. H. M. Payne. *Eng & Min J* 96:785 O 25 '13
 Simple bonus system and its results. W. L. Myles. *Ind Iron Age* 91:43-5 Ja 2 '13
 Task setting for firemen and maintaining high efficiency in boiler plants. W. N. Polakov. *Diags Am Soc M E J* 35:1729-69 D '13; Same cond., with discussion. *Power* 38:881-7 D 23 '13
 Time study and task work explained. S. E. Thompson. *Iron Age* 91:1010-2 Ap 21 '13; Same. *Ind Eng* 13:347-50 Ag '13

Bonus system in buying

- Bonus system for the purchase of Portland cement. *Eng N* 70:281 Ag 14 '13; *Eng Rec* 68:215-6 Ag 23 '13

Bookbinding

- New bookbinding device. *Sci Am* 109:291 O 11 '13

Bookkeeping

- Bookkeeping for the master plumber. C. H. Dawson. *Dom Eng* 65:34-8 O 11 '13
 Keeping books by machine: the punched card as a saver of brain energy. H. S. McCormack. *Ind Sci Am* 108:194-5 Mr 1 '13

Bookkeeping - Continued.

Keeping personal accounts. A. H. Sawyer. Eng & Min J 96:686-7 O 11 '13

See also Accounting; Card system in business; Cost accounting; Mine accounting; Municipal accounting; Railroads—Accounting

Books

See also Printing

Books and reading

Do architects read? a group of interviews. S. Howe. Arch Rec 33:82-90 Ja '13

Technical extra illustration: preserving clippings. A. L. Haas. Power 38:326 S 2 '13

Boring

Applied geology, Michigan iron ranges. P. B. McDonald. diags Eng & Min J 96:208-10 Ag 2 '13; Same. Sci Am S 76:235 O 11 '13

Blast-hole drilling, Nevada consolidated. W. R. Brown. Eng & Min J 96:982-4 N 22 '13

Churn-drill angle holes on the Cuyuna. P. W. Donovan. il Eng & Min J 96:1117-8 D 13 '13

Churn drilling in southwestern Wisconsin. W. F. Boericke. il Eng & Min J 96:355-7 Ag 30 '13

Controlling the direction of bore holes. plan Mines & Min 33:327-9 Ja '13

Drilling in mid air. C. M. Hansen. il Eng & Min J 96:211 Ag 2 '13

Drilling in the Michigan copper mines. Eng & Min J 96:915 N 15 '13

Drilling Mesabi gopher holes. diags Eng & Min J 96:1169-70 D 20 '13

Itemized equipment for churn drill. H. P. Bowen. diags Eng & Min J 96:444-6 S 6 '13

Karns tunneling machine. O. J. Grimes. il Eng N 69:470-1 Mr 6 '13; Same. Eng M 45:261-3 My '13

Manipulation of cylinder towers on a drill boat. il Eng Rec 67:602 My 31 '13

Preliminary testing of placer ground. il Eng & Min J 95:702-4 Ap 5 '13

Preliminary testing of placer ground. M. E. Lafferty. Eng & Min J 95:961-2 My 10 '13

Rock drilling in the Tennessee river. Eng Rec 68:488-9 N 1 '13

Substitution of air for water in diamond drilling. R. Wilcox. Am Inst Min E Bul 82:2469-16 O '13; Same cond. Eng & Min J 96:973-4 N 22 '13

Unit drilling costs. Rawley tunnel. Eng & Min J 95:523 Mr 8 '13

See also Rock drills; Shaft sinking

Boring (metal working, etc.). See Drilling and boring

Bornite

Description of bornite. L. C. Gratton. Am Inst Min E Bul 77:769-5 My '13

Bosphorus

Bridging the Bosphorus and the Golden Horn at Constantinople. H. G. Tyrrell. map plan Eng N 70:1020-1 N 20 '13

Boston, Massachusetts**Bridges**

Pivot pier of Chelsea bridge north. il diags Eng Rec 68:138-9 Ag 2 '13

Harbor

Commonwealth pier 5, Boston. il plans Eng Rec 68:275-7 S 6 '13

Law

Builders' license law, Boston. Eng N 70:640-1 O 2 '13

Public works

Year's experience with the Boston public works department organization. Eng N 69:1048-9 My 22 '13

Rapid transit

Accident prevention in Boston. E. Dana. il Elec Ry J 41:58-61 Ja 11 '13

Extensions of the Boston subway. il Ry & Eng R 53:262-4 Mr 22 '13

How service requirements are ascertained in Boston. E. Dana. Elec Ry J 42:349-4 Ag 30 '13

Investigation of street railway service at Boston. Elec Ry J 42:1296 D 20 '13

New subway construction. map plans Eng N 70:1190-2 D 11 '13

Subway passenger referendum at Boston. il Elec Ry J 41:856 My 10 '13

Traffic statistics from Boston. Elec Ry J 41:287 F 15 '13

Utilizing electrical energy in the construction of subway at Boston. il Elec W 61:44-7 Ja 4 '13

See also Boston elevated railway

Sanitary affairs

Collection and disposal of Boston refuse. il plan Eng Rec 67:512-5 My 10 '13

Boston & Maine railroad

Boston & Maine extension from Hinsdale, N. H., to Brattleboro, Vt. il Ry Age 55:561-2 O 10 '13

Boston and Maine's extremity. Ry & Eng R 53:1161-5 D 20 '13

Boston elevated railway

Boston arbitration hearings. Elec Ry J 42:349, 434, 470, 511, 700-1, 941, 993, 1030, 1066-7 Ag 30, S 13-27, O 11, 25-N 15 '13

Boston elevated organization. Elec Ry J 41:240 F 8 '13

Changes in Boston elevated organization. Elec Ry J 41:43 Ja 4 '13

Hours of labor agreement. Elec Ry J 42:1254-5 D 13 '13

Improvements on Boston elevated system. il plans Elec Ry J 41:357-65, 408-14 Mr 1-8 '13

Botany

See also Bacteriology; Seeds

Bouillon cubes

Bouillon cubes; their contents and food values compared with meat extracts and home-made preparations of meat. F. C. Cook. il U S Agric Bul 27:1-7 '13

Boundaries

Glaciers and international boundaries. L. Martin. map il Sci Am S 76:129 Ag 30 '13

Box cars. See Freight cars**Box factories**

Motion study in the box shop. R. T. Kent. plans Ind Eng 13:325-9 Ag '13

See also Cigar-box factories

Box making

Tests of packing boxes of various forms. J. A. Newlin. il U S Forest Serv Circ 211:1-23 '13; Abstract. Eng Rec 67:116 Ap 12 '13

Boxes

Need of better boxes for freight. Ry Age 55:23-4 J1 4 '13

See also Box factories; Box making

Boxes, Water-tight. See Water-tight boxes**Boys' schools.** See Interlaken school**Bracing**

Failures in building construction and their lessons. E. Godfrey. il Arch & Bldg 45:329-33 Ag '13

Overcoming difficulties in New York Lexington avenue subway: excavating rock and quicksand 50 feet below tide level under traffic in city streets. diags Eng Rec 68:575-7 N 22 '13

Brake shoes

Continuous brake shoe plant. plan Foundry 41:50 F '13

Brakes

Geared brake with special release feature. il Elec Ry J 42:1027 N 8 '13

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Brakes, Automobile

Jackshaft vs. double rear wheel brakes. diags Automobile 29:250-2 Ag 7 '13

Brass

Antimony in brass mixtures. C. Vickers. Foundry 41:322-3 Ag '13

Brass finishes. Foundry 41:189 My '13

Brass *Continued.*

- Corrosion of condenser tubes. G. D. Bengough and R. M. Jones. *Metal Ind* n s 11:386-7 S '13
- Cracking of bronzes and brasses; with discussion. A. D. Flinn. *il Eng Rec* 68:527-8 N S '13
- Determination of oxygen in copper and brass. T. West. *Metal Ind* n s 11:379-80, 511-3 S, D '13
- Increasing the efficiency of a brass manufacturing plant. P. W. Blair. *il Metal Ind* n s 11:13-4 Ja '13
- Manufacture of wrought brass; continued from August, 1912. L. J. Krom. *il Metal Ind* n s 11:18-9, 337-9 Ja. Ag '13
- Metal fakes; how the unwary buyer is deceived. *Sci Am* S 75:295 My 10 '13
- Nomenclature of the non-ferrous alloys. C. P. Karr. *Foundry* 41:481-7 N '13; Same. *Metal Ind* n s 11:517-21 D '13
- Oxygen in brass. T. Turner. *Metal Ind* n s 11:214-5 My '13
- Plant of Michigan smelting & refining co., Detroit, Mich. *il Metal Ind* n s 11:1-6 Ja '13
- Production and working of sheet brass. C. H. Stilson. *Eng M* 45:241-6 My '13
- Recent improvements in non-ferrous alloys. C. Vickers. *Foundry* 41:416-20 O '13
- Recovering brass from foundry cinders. L. L. Wittich. *plans Eng & Min J* 95:853 Ap 26 '13
- Use of arsenical copper for making cold rolled brass. E. A. Lewis. *Metal Ind* n s 11:76-7 F '13

See also Brazing

Brass founding

- Annual meeting of the American institute of metals. Chicago, Oct., 1913. *Foundry* 41: 479-83 N '13
- Brass foundry difficulties solved by experts. *See* monthly numbers of the *Foundry*
- Brass foundry furnaces. W. H. Parry. *Metal Ind* n s 11:423-4 O '13
- Dangers of phosphorus and sodium. C. Vickers. *Foundry* 41:27 Ja '13
- Distillation of impurities from copper. *Foundry* 41:28-9 Ja '13
- Electric brass furnace. C. Hering. *Foundry* 41:111-2 Mr '13
- Electric brass furnace. C. Vickers. *Foundry* 41:27-8 Ja '13
- Electric furnace for brass melting. *Eng & Min J* 96:350 Ag 23 '13
- Electric furnaces in iron and brass foundries. E. K. Scott. *Foundry* 41:379-81 S '13
- Hints on brass founding; continued from May, 1912. *plan Metal Ind* n s 11:10-1, 216-7 Ja. My '13
- How much coal does it take to melt a pound of brass? R. A. Wood. *Metal Ind* n s 11:88 F '13
- Large pumps of acid resisting metal. W. J. Reardon. *il Metal Ind* n s 11:26-7 Ja '13
- Melting brass in the electric furnace. *Ind Eng* 13:27 Ja '13
- Melting losses in the brass foundry. *Foundry* 41:116-7 Mr '13
- Producing brass ingots in Michigan smelting & refining co.'s plant, Detroit. *il plan Foundry* 41:72-7 F '13
- Statuary and ornamental castings. W. N. Nelly. *il Metal Ind* n s 11:595-6 D '13
- Utilizing the waste heat from brass furnaces; various types designed to facilitate melting. J. Horner. *plans Foundry* 41:113-6 Mr '13

Brass foundries

- Aids to brass foundry management. *Foundry* 41:162-3 Ap '13
- Brass foundry of the future. C. P. Karr. *Metal Ind* n s 11:482-4 N '13
- Power plant in a Canadian brass manufacturing concern, Sarnia, Ont. P. W. Blair. *il Metal Ind* n s 11:449-1 O '13
- Relation of metal cast to floor area of factory. P. W. Blair. *il Metal Ind* n s 11:111-2 Mr '13
- Waterbury, Conn.—metal casting shop. G. Thompson. *il plans Metal Ind* n s 11:155-7, 206-9 Ap-May '13

Brazil

- Wages in the Amazon river valley. H. E. Collins. *Power* 37:521-3 Ap 15 '13

Navy

- Armored river monitors for Brazil. F. C. Coleman. *plan Int Marine Eng* 18:471-2 N '13

Brazing

- Brass and copper plating of the future. E. G. Lovering. *il Metal Ind* n s 11:173 Ap '13
- Electrodeposition of brass and bronze. C. W. Bennett. *Metal Ind* n s 11:170-3 Ap '13

Bread

- Salt-rising bread; raising dough with newly discovered bacteria. H. A. Kohman. *il Sci Am* 108:220 Mr S '13
- Staling of bread explained in the light of physical chemistry. R. Lorenz. *il Sci Am* S 76:268-9 O 25 '13

Breathing apparatus. *See* Respiration, Artificial**Breuchaud, Jules**

- Study in local adaptation. D. E. Tarn. *il Arch Rec* 34:318-28 O '13

Breweries

- Features of the Lemp brewing company's plant, St. Louis, Mo. *il Power* 38:420-3 S 23 '13

Brewster, Frederick F.

- Edgerton, a study in the Tudor style; the Frederick F. Brewster residence at New Haven, Conn. R. H. Dana. *il Arch Rec* 34: 273-91 O '13

Brick pavements. *See* Pavements, Brick**Brick roads.** *See* Roads, Brick**Bricks**

- Manufacture of paving brick from furnace slag. *Eng Rec* 68:241 Ag 30 '13
- See also* Adobe bricks; Brickwork; Bricks (iron); Fire bricks; Masonry

Brickwork

- Tests of two brick piers of unusual size. J. E. Howard. *il Eng Rec* 67:332-4 Mr 22 '13; Same cond. *Eng N* 69:638-9 Mr 27 '13
- See also* Masonry

Bridge contracts

- Preparing and letting bridge contracts. *Concrete Cem* 3:121 S '13
- Preparing and letting bridge contracts. W. J. Watson. *Concrete Cem* 3:176-7 O '13

Bridge expansion

- Observations on bridge expansion. H. A. Loser. *diag Eng N* 70:1170-1 D 11 '13

Bridge failures

- Failure of a steel-truss highway bridge in Colorado. W. H. Hubbard, jr. *il plan Eng* N 69:532-3 Mr 13 '13
- Partial failure of a light highway bridge. F. Tissington. *plans Eng N* 70:904-5 N 6 '13
- Report on Glen Loch derailment. *Ry Age* 54: 717-9 Mr 28 '13
- Wellsville bridge failure. E. K. Morse; D. J. McLachlan. *Eng N* 69:737 Ap 10 '13
- Why some bridges fail. *il Munic Eng* 44: 434-7 My '13

Bridge inspection

- Instructions for the inspection of the fabrication of steel bridges. *Ry & Eng R* 53: 396 Mr 29 '13; Same. *Ry Age* 54:581-3 Mr 19 '13
- Iron and steel structures. *Ry Age* 51:580-5 Mr 19 '13
- Methods for the inspection of bridges: systems in use on seven representative roads. F. E. Schall. *Ry Age* 55:969-74 N 21 '13
- Periodical bridge inspection. *Ry Age* 51:338 F 21 '13

Bridge moving

- Moving a bridge to permit the passage of a dredge. *Eng Rec* 67:220 F 22 '13
- Moving a three-span truss bridge over the Kaw river at Kansas City. C. E. Smith. *il plans Eng N* 70:54-61 Ji 10 '13
- Moving the Union Pacific Kaw river bridge, Kansas City. *il plans Eng Rec* 67:601-2 My 31 '13

Bridge moving *Continued.*

Pitt river railroad bridge moved to new site for highway service. Eng Rec 68:269 S 6 '13
 Reconstruction of Kaw river bridge. C. E. Smith. il plans Ry Age 55:45-9 J 11 '13
 Shifting railroad bridge spans on barges at Hannibal, Mo. il Eng Rec 68:500 N 1 '13
 Transferring bridge spans on barges at Hannibal, Mo. il Eng N 70:1128 D 1 '13

Bridge painting

Difficulties and deficiencies in railway bridge painting. W. G. Wilson. Ry Age 55:982-3 N 21 '13
 Tests of bridge paint. J. S. Rice; A. B. Phelps. Ry Age 55:1179-80 D 19 '13

Bridge shops

Last word in bridge shops. Eng Rec 67:622 Je 7 '13
 St. Lawrence bridge company's new shop; Montreal. il plans Eng Rec 67:624-6 Je 7 '13

Bridges

Bridge erection without scaffold. il Sci Am 109:190 S 6 '13
 Bridges and culverts for country roads in Wisconsin. A. R. Hirst. Eng N 70:729-30 O 9 '13; Same cond. Eng Rec 68:378 O 4 '13
 Bridges in relation to the Hudson River. G. F. Kunz. Sci Am S 76:342-3 N 29 '13
 Bridges of the Connecticut company. il Elec Ry J 42:638-43 O 4 '13
 Bridging the Bosphorus and the Golden Horn at Constantinople. H. G. Tyrrell. plan Eng N 70:1020-1 N 20 '13
 Chicago—Milwaukee avenue viaduct. Eng N 69:613 Mr 27 '13
 Civil service examination questions for New York state. Eng N 70:1129-31 D 4 '13
 Compensation for street-railway use of highway bridge in New Jersey. Eng Rec 68:557-8 N 15 '13
 Data for use in designing culverts and short-span bridges. C. H. Moorefield. il U S Pub Roads Bul 45:7-39 '13
 Design of large bridges, with special reference to the Quebec bridge. R. Modjeski. il plans J Fr Inst 176:239-82 S '13; Same. Eng Rec 68:321-4, 354-6, 383-5 S 20-O 4 '13
 Erecting a long plate-girder span by hand at Cheltenham, Pa. plan Eng Rec 67:468 Ap 26 '13
 How Mexican rebels destroy railways and bridges. G. E. Weeks. il Sci Am 109:209-10 S 13 '13
 Influence of traffic on highway bridge design. Eng Rec 67:132-3 F 1 '13
 Municipal bridge approach. St. Louis: description and methods of construction. S. W. Bowen. il plans Eng N 69:94-100 Ja 16 '13
 New York state highway department bridges. diags Eng Rec 68:361-2 S 27 '13
 Organization and equipment for maintenance, operation, inspection, repair and renewal of East river bridges, N. Y. plans Eng Rec 67:98-101 Ja 25 '13
 Pole-truss highway bridges on mountain roads in Washington. C. R. Ege. il Eng N 69:842-3 Ap 24 '13
 Portland—broadway bridge over Willamette river, with rail bascule span. W. P. Hardesty. il plan Eng N 70:704-10 O 9 '13
 Proportioning of long-span truss and cantilever bridges. J. Mayer. J Fr Inst 176:645-70 D '13 (to be cont.)
 Proposed Hudson river bridge and tunnels to connect New York and New Jersey. plans Eng Rec 67:367, 384-7 Ap 5 '13
 Proposed Hudson river bridge: present necessity for highway and railway bridge at New York city. G. Lindenthal. Eng M 44:779-81 F '13
 Public works in the Philippine Islands under the American régime. H. F. Cameron. il Eng Rec 68:174 Ag 16 '13
 St. Lawrence bridge company's new shop; Montreal. il plans Eng Rec 67:624-6 Je 7 '13
 Two old French masonry bridges: Pont-du-Gard and Pont d'Avignon. F. P. McKibben. il Eng Rec 67:674-5 Je 14 '13

Waterway structures in Wisconsin. A. R. Hirst. Concrete Cem 3:265-6 D '13
 Wooden trestle bridge carried on timber beams across Baker river, Wash. il Eng N 69:1205-6 Je 12 '13

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Abutments

Bridge abutment with cantilever wings. il plans Eng N 70:817-8 O 23 '13
 Design of concrete abutments without wing walls for deck girders. C. M. Luther. plans Eng N 70:816-7 O 23 '13
 Novel design for a high abutment. E. F. Ackerman. il diag Ry Age 54:759-61 Mr 28 '13

Cost

Collection and use of construction cost data. Eng N 70:1305-7 D 25 '13
 Piers for a North river bridge at New York city would effect no saving in cost over a single span. G. Lindenthal. Eng N 69:126 Ja 16 '13
 Weight and cost of bridges: comparison of different types in Buffalo. diags Eng Rec 68:640-1 D 6 '13

Damages from floods, etc.

Damage to bridges at Lafayette, Ind. R. L. Sackett. il Eng N 69:837-8 Ap 24 '13
 Damage to structures in Indianapolis flood. D. V. Moore. il map Eng N 69:870-5 Ap 24 '13
 Destruction of bridges in Indiana flood. C. Brossmann. il Eng Rec 67:373-4 Ap 5 '13
 Genesee river bridge wrecked by ice. Eng Rec 67:92 Ja 25 '13
 Results of recent flood at Columbus; damages to bridges and levees and plans for improving river channels. J. J. Morgan. il map Eng Rec 67:444-5 Ap 19 '13
 Y bridge at Zanesville, O. withstands flood. R. H. Lewis. il Concrete Cem 2:292-3 Je '13

Floors

Protective coatings for railway bridge floors. A. W. Carpenter. Eng N 69:60-1 Ja 9 '13
 Viaduct floor of hollow concrete tile. il Eng Rec 68:647-8 D 6 '13

Foundations and piers

Concrete pile specifications for the Point bridge at Pittsburgh. Eng Rec 68:581 N 22 '13
 Concrete specifications for bridge substructure. Eng Rec 68:305-6 S 13 '13
 Construction features of the substructure of the Cumberland river bridge, L. & N. Ry. H. M. Jones. il map Eng N 69:1050-2 My 22 '13
 Construction of new Quebec bridge piers. H. P. Borden. il Ry Age 55:365-9 Ag 29 '13
 Deep-water piers for Passaic and Hackensack river bridges. il Eng Rec 68:698-9 D 20 '13
 Foundation work on the Pitt river bridge; Canadian Pacific Ry. il plan Eng Rec 67:717-8 Je 28 '13
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 Nicholson, Pa.—foundations for the Tunkhannock viaduct. il plan Eng Rec 67:482, 484-8 My 3 '13
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- Equivalent uniform loads on bridges for different types of engine. Eng N 70:824-5 O 23 '13
- Experiments on moving loads on highway bridges. Eng Rec 68:165-6 Ag 9 '13
- Impact stresses in railroad bridge design. Eng Rec 67:364 Mr 29 '13
- Moving loads on steel bridges: consideration of stresses produced by train crossing truss and girder spans. Eng Rec 68:663-1 D 13 '13

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- Bridge renewal on the Boston & Albany railroad. il Ry & Eng R 53:1058-9 N 15 '13
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- Erecting Canadian Pacific bridge over the St. Lawrence river. il diags Ry Age 54:1027-9 My 9 '13
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- Novel method of removing an old bridge. Eng N 69:846 Ap 24 '13
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- Pont Notre-Dame reconstruction, Paris: arch replacement under traffic. il plans Eng N 70:1211-4 D 18 '13
- Rebuilding of the burned Newark Bay trestle bridge, Pennsylvania railroad. il Ry & Eng R 53:796 Ag 23 '13
- Rebuilding the Zanesville bridge. il Eng N 69:1146-7 My 29 '13
- Reconstruction of Kaw river bridge. C. E. Smith. il plans Ry Age 55:45-9 Jl 11 '13
- Reconstruction of the old chain bridge at Newburyport, Mass. E. C. Sherman. il plans Eng N 70:585-7 S 25 '13
- Reconstruction of the Quebec bridge: a design. G. Kriwoschein. il Sci Am S 75:233-5 My 10 '13
- Renewing two swing spans under traffic at Lacolle, Quebec, and Portland, Me. il plan Ry Age 54:1575-7 Je 20 '13
- Replacing a timber Howe truss with a long-span plate-girder. il plan Eng N 70:1303-4 D 25 '13
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- Replacing the Cuyahoga river draw bridge [bascule]. il diags Eng Rec 67:20-1 Ja 4 '13
- Safeguarding displaced viaduct piers: stopping dangerous settlement and sliding by drainage system; underpinning and rebuilding foundations at Cleveland. il diags Eng Rec 68:661-3 D 13 '13
- Schuylkill river bridge improvements: widening a masonry arch structure on Pennsylvania main line in Philadelphia. il diag Ry Age 55:1173-6 D 19 '13

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- Bridge maintenance. Ry Age 54:1560-1 Je 20 '13
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- Reinforcing a scoured pier foundation at Newcomerstown, O. E. Stingel. diag Eng Rec 68:182 Ag 16 '13
- Reinforcing an old railway viaduct. W. T. Curtis. plan Eng N 69:1326-7 Je 26 '13

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- Atherton avenue highway bridge, Pittsburgh. il plans Eng Rec 67:540-2 My 17 '13
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- Capitol avenue bridge, Indianapolis, Ind. L. V. Sheridan. Munic Eng 45:268-9 S '13
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- Highway bridge specifications; requirements outlined by U. S. office of public roads. Eng Rec 68:230-2 Ag 30 '13
- Instruction for the inspection of the fabrication of steel bridges. Ry Age 54:581-3 Mr 19 '13; Same, Ry & Eng R 53:306 Mr 29 '13
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- Necessary precautions in the design and supervision of construction of low-truss steel highway bridges. G. M. Braune. Eng N 70:398-9 Ag 28 '13
- Nisqually river pipe-line bridge; design and erection at La Grande, Wash. il plan Eng Rec 67:327-8 Mr 22 '13
- Observations on bridge expansion. H. A. Loser. diag Eng N 70:1170-1 D 11 '13
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- Lift bridges over the Buffalo river. E. Low. *il diags map Ry Age* 54:197-201 Ja 31 '13
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- Question of impact on bridge substructures. C. M. Luther. *Eng N* 69:180 Ja 23 '13
- Railroad bridge design in Europe and America. *Eng Rec* 67:244-6 Mr 1 '13
- Railway bridges on track elevation. G. H. Tinker. *Eng N* 69:355 F 20 '13
- Rebuilding of the burned Newark Bay trestle bridge, Pennsylvania R. R. *il Ry & Eng R* 53:796 Ag 23 '13
- Rebuilding the Zanesville bridge, Baltimore & Ohio R. R. *il Eng N* 69:1146-7 My 29 '13
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- Replacing Cedar river bridge: building new and extending old piers; erecting plate-girder spans by derrick cars and by overhead jigger beams. *il Eng Rec* 68:183-5 Ag 16 '13
- Replacing high timber trestle near Boone, Iowa without interrupting traffic. *il Eng Rec* 67:187-8 F 15 '13
- Replacing Portageville [N. Y.] bridges. *il plan Eng Rec* 67:407 Ap 12 '13
- Report of committee of American railway engineering assn. on wooden bridges and trestles. *Ry Age* 54:617-20 Mr 20 '13
- Schuylkill river bridge improvements: widening a masonry arch structure on Pennsylvania main line in Philadelphia to carry a five-track passenger line. *il diag Ry Age* 55:1173-6 D 19 '13
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- Summit-Hallstead cut-off of Delaware, Lackawanna & Western railroad: description of Tunkhannock viaduct and other structures. *il diags Ry Age* 55:1069-74 D 5 '13
- Track elevation of the P. R. R. at Pittsburgh. *il Ry & Eng R* 53:475-6 My 24 '13
- Tunkhannock viaduct construction on D., L. & W. relocation. *il Eng Rec* 68:594-6 N 29 '13
- Two large concrete arches on a Swiss mountain railway. *il Eng N* 70:1294-5 D 25 '13
- Weldon viaduct over the Roanoke river: steel structure 3,688 feet long. *il plan Ry Age* 54:998-1000 My 2 '13
- Yardley (Pa.) bridge across the Delaware river, Philadelphia & Reading Ry. *il plans Eng N* 69:1101-8 My 29 '13
- Yardley (Pa.) bridge replacing. *il plans Eng Rec* 67:493-4 My 3 '13
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- Bridge over the Rhine at Cologne. C. J. Kavanagh. *il plans diags Eng N* 70:845-9 O 30 '13
- Clifton chain suspension bridge, over the River Avon, at Bristol, England. *il Eng N* 69:191-2 Ja 30 '13
- Clifton suspension bridge, at Bristol, England. H. G. Tyrrell. *Eng N* 69:379-80 F 20 '13
- Comparative economy of cantilever and suspension bridges. *Eng Rec* 67:566-7 My 24 '13
- Miniature suspension bridge. R. O. Richards. *plan Power* 37:677 My 13 '13
- Proposed Hudson river bridge and tunnels to connect New York and New Jersey. *plans Eng N* 69:839-41 Ap 24 '13; *Eng Rec* 67:367, 384-7 Ap 5 '13; *Same cond. Eng M* 45:422-4 Je '13
- Proposed long-span bridge over the Mersey, Liverpool, Eng. *Eng Rec* 67:73 Ja 18 '13
- Suspension bridges and cantilevers. D. B. Steinhman. *Eng Rec* 67:547-8, 577-8 My 17-24 '13

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- Briquetting coal. *il diag Colliery* 33:687-9 JI '13
- Briquetting pitch from coke oven tar. *Iron Age* 92:589-90 S 11 '13
- Briquetting plant at Cardiff, Wales. *Eng & Min J* 95:945 My 10 '13

Briquets (iron)

- Briquetting of flue dust in the United States by the Schumacher process. F. A. Vogel and A. M. Tweedy. *il Am Inst Min E Bul* 84:2829-34 D '13
- Experiences with beneficiated ores. *Iron Age* 92:902-5 O 23 '13
- Reclamation of flue dust. *Eng & Min J* 96:394 Ag 30 '13
- Reclamation of flue dust for furnace use. A. F. Plock. *Iron Tr R* 52:1017-8, 1063-5 My 1-8 '13
- Scoria briquetting process: the use of slag as a binder in preparing minerals for smelting. E. Stütz. *il Eng M* 45:888-90 S '13
- Scoria process for the manufacture of fine-ore briquettes, flue-dust briquettes, and slag brick for building purposes. E. Stütz. *diags Am Inst Min E Bul* 79:1257-65 JI '13; *Discussion*. 84:2890-2903 D '13
- Use of nodulized ore in the blast furnace. R. H. Lee. *Am Inst Min E Bul* 82:2515-22 O '13; *Discussion*. 84:2864-9 D '13

Bristol, England**Bridges**

- Clifton chain suspension bridge, over the River Avon, at Bristol, England. *il Eng N* 69:191-2 *Ja* 30 '13
 Clifton suspension bridge. H. G. Tyrrell. *Eng N* 69:379-80 *F* 20 '13

British association for the advancement of science

- Abstracts of the principal papers, 1913. *Sci Am S* 76:238-9, 258-60 *O* 11, 25 '13
 Meeting, Birmingham, England, Sept., 1913. *Elec W* 62:618-9 *S* 27 '13
 Sessions, September 15 and 16, 1913. *Elec W* 62:675-6 *O* 4 '13

British Columbia**Mines**

See Mines and mineral resources—British Columbia

British Columbia copper company

- Annual report for 1912. *Eng & Min J* 95: 987 *My* 17 '13

British foundrymen's association

- 10th annual convention, London, 1913. J. Horton. *il Foundry* 41:334-8 *Ag* '13

British institute of metals

- Annual meeting, London, 1913; abstracts of papers presented. *Met & Chem Eng* 11:179-80 *Ap* '13

Broaching machines

- Broaching a vacuum cleaner part. R. R. Lapointe. *il diag Mach* 19:391 *Jl* '13
 Broaching automobile parts. C. L. Lucas. *il diags Mach* 19:787-8 *Je* '13
 Broaching vs. milling. F. J. Lapointe. *il diag Mach* 19:799 *Je* '13
 Highly developed broaching operation. *il Mach* 19:560 *Jl* '13
 Making push broaches for steel work. E. Viall. *il Am Mach* 33:725-7 *My* 1 '13
 Making the Red-E tool-holder. C. L. Lucas. *il Mach* 19:715-6 *My* '13
 Manufacturing broaching machines and tools: description of system with details of production of necessary equipment at J. N. Lapointe co. *il Iron Tr R* 52:735-8 *Mr* 27 '13
 Points on broach-making. P. D. Jones. *Mach* 20:97-8 *O* '13

Brocken, Specter of

- Optical phenomena seen from balloons. C. F. Talman. *il Sci Am* 108:542 *Je* 14 '13

Bromine

- Atomic weight of bromine. H. C. P. Weber. *U S Bur Stand Bul* 9:131-50 *Mr* 15 '13

Bronze

- Casting a 27,000 pound manganese bronze propeller wheel. W. R. Dean. *il Metal Ind n s* 11:71-3 *F* '13
 Cracking of bronzes and brasses; with discussion. A. D. Flinn. *il Eng Rec* 68:527-8 *N* 8 '13
 Intricate bronze casting for a submarine. *il Foundry* 41:227-8 *Je* '13
 Making a large vanadium bronze engine housing. *il Foundry* 41:224-6 *Je* '13
 Nomenclature of the non-ferrous alloys. C. P. Karr. *Foundry* 41:484-7 *N* '13; Same. *Metal Ind n s* 11:517-21 *D* '13
 Plant for the manufacture of large manganese bronze castings: the American manganese bronze co. at Holmesburg Junction, Pa. *il Metal Ind n s* 11:287-8 *Jl* '13
 Sheet bronze for safety chains and the like. R. Grimshaw. *Metal Ind n s* 11:303 *Jl* '13
 Strength and ductility of iron, steel and bronzes at high temperatures. *Eng N* 69: 372-4 *F* 20 '13

See also Bronzes; Bronzing; Gun metal

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- Art of making bronze statues; from the raw clay to the finished figure. C. E. Fairbanks. *il Sci Am* 108:156-7 *F* 15 '13

Bronzing

- Bronze finishes. O. A. Hillman. *il Metal Ind n s* 11:160-1 *Ap* '13
 Electrodeposition of brass and bronze. C. W. Bennett. *Metal Ind n s* 11:172-3 *Ap* '13

Brooklyn, N. Y.**Greenwood cemetery**

- Concrete features of the Greenwood mortuary chapel. *il plan Eng Rec* 67:362 *Mr* 29 '13

Rapid transit

- Brooklyn rapid transit. *Ry Age* 55:185 *S* 19 '13

Sanitary affairs

- Subaqueous sewer construction. *il plans Eng N* 70:1064-70 *N* 27 '13

Brooklyn rapid transit company

- Annual report for year ending June 30, 1913. *Ry Age* 55:543-5 *S* 19 '13

- Brooklyn motor, truck and brakeshoe improvements. *il Elec Ry J* 41:98-103 *Ja* 18 '13

- Maintenance of electrical equipment of cars in Brooklyn. *il plans Elec Ry J* 41:480-9 *Mr* 15 '13

- Medical inspection system. *Ry & Eng R* 53: 708-9 *Jl* 26 '13

- Welfare work. H. A. Bullock. *Elec Ry J* 42:825-7 *O* 16 '13

Brooms

- Rattan broom filling machine at Milwaukee. *il Elec Ry J* 41:513 *Mr* 15 '13

Brush discharge. See Electric discharges**Brush losses**

- Brush friction and contact losses. H. F. T. Erben and A. H. Freeman. *Am Inst E E Pro* 32:370-6 *F* '13
 Commutation and brush loss. C. E. Wilson. *Am Inst E E Pro* 32:640-8 *F* '13
 Discussion on group II papers (Methods of determining losses in apparatus). (See Proceedings for February, 1913) *Am Inst E E Pro* 32:2029-52 *N* '13
 Methods of determining brush losses due to contact and friction. H. R. Edgecomb and W. A. Dick. *Am Inst E E Pro* 32:450-61 *F* '13

Brushes, Paint. See Paint brushes**Brussels****Railroads**

- New railway stations and six-track tunnels at Brussels. *plan Eng N* 70:160-1 *Jl* 24 '13

Buckeyemobile

- American locomobile. *Power* 38:849-51 *D* 16 '13
 American locomobile. G. S. Cooper. *Elec Ry J* 42:1297 *D* 20 '13
 Operating results with an American locomobile. *Elec W* 62:1279-80 *D* 20 '13
 Present status of the locomobile. W. H. Miller. *il Elec W* 62:326-7 *Ag* 16 '13
 Self-contained superheated steam-driven unit. *il diag Eng & Min J* 96:913-4 *N* 15 '13
 Steam-power unit of remarkable efficiency: Buckeye-mobile. *il diag Ind Eng* 13:399-401 *S* '13

Buckhannon & Northern railroad

- Construction of the Buckhannon & Northern railroad. R. E. Kerr. *il map Ry Age* 55: 617-8 *O* 3 '13

Budgets

- National budget on its expenditure side. H. S. Chase. *J Account* 15:397-411 *Je* '13
 What is involved in the making of a national budget. F. A. Cleveland. *J Account* 15: 313-28 *My* '13

Buenos Aires

- Railways and subways at Buenos Aires. F. Lavis. *il map Eng Rec* 68:613-5 *N* 29 '13

Buffalo, New York**Bridges**

- Lift bridges over the Buffalo river. E. Low. *il diags map Ry Age* 54:197-201 *Ja* 31 '13

Railroads

- Study for unification of all freight terminals at Buffalo. *Eng Rec* 68:414-6, 431-2 *O* 11-18 '13

- Study for unifying the freight terminal of Buffalo. G. H. Kimball. *map plan Ry & Eng R* 53:1168-73 *D* 20 '13

Rapid transit

- New substations in Buffalo. *il plan Elec Ry J* 41:840-3 *My* 10 '13

Buffalo, Rochester & Pittsburgh railroad

Revenues and expenses. Ry Age 55:318-9 Ag 22 '13

Studies of operation. W; E. Hooper. Ry Age 54:663-7 Mr 21 '13

28th annual report, for year ending June, 1913. Ry Age 55:355-6 Ag 22 '13

Buffalo street railway

Niagara power for the International railway company. diag Elec Ry J 42:420-2 S 13 '13

Buffers (railroad)

Stronger buffers needed for railway terminals. Eng N 70:519 S 11 '13

Test of a hydraulic buffer. C. Schwartz. Il Am Soc M E J 55:937-45 Je '13; Discussion. 35:1258-60 Ag '13

Test of a hydraulic buffer for railroad terminal stations. Il Eng N 70:526-7 S 11 '13

Buffing. See Grinding and polishing**Buhrer, Caspar, 1854-1913**

Sketch. por Ry & Eng R 53:307-8 Mr 29 '13

Buick motor co., Flint, Mich.

Co-operation in the Buick plant. Automobile 29:1193 D 25 '13

Building

Building construction in India. H; D. Barker. Concrete Cem 3:269-70 D '13

Constructing a building upside down. Il Sci Am 109:281 O 11 '13

Construction conditions in South America. W. E. Wagner. Il Concrete Cem 3:122-4 S '13

Construction of an 8-story shop-building; Fisher building, Detroit. J; N. McMichaels. Il plans Concrete Cem 2:57-60 F '13

Construction work in Madison Square garden for an automobile exhibition. Il Eng N 69:1164-6 Je 5 '13

Cost of small frame buildings for a construction camp. Eng & Min J 96:550 S 20 '13

Design of steel mill buildings. R. Fleming. Eng Rec 68:467-9, 491-3 O 25-N 1 '13

Details of engine test building of M. Rumely co., Laporte, Ind. Il plans Eng Rec 67:42-3 Ja 11 '13

Effect of the Omaha tornado on structures. A. C. Arend. Il Eng N 69:898-900 My 1 '13

Eliminating columns in a store front. plans Eng Rec 67:732 Je 28 '13

Erecting the 22d regiment armory, New York. Il Eng Rec 67:185 F 15 '13

High eight-acre exposition building with a timber frame, San Francisco. H. D. Dewell. Il Eng Rec 67:553-4 My 17 '13

How a basement story was added to a mill. J. Chittick. diag Sci Am S 76:324 N 22 '13

How to lay out building lots or foundations. Concrete Cem 2:251-2 My '13

International building exposition in Leipzig. Sci Am 108:200 Mr 1 '13

Life hazard in crowded buildings due to inadequate exits. H. F. J. Porter. plans Sci Am S 76:2-3 Jl 5 '13; Same. Eng N 70:228-30 Jl 31 '13

New building for the Bureau of engraving and printing, Washington. D. C. F. W. Lepper. Il plans Eng N 70:335-8 Ag 21 '13

Partitions for factories and industrial buildings. H; G. Tyrrell. Il Eng M 45:853-61; 16:53-62 S-O '13

Practical method of following up construction work. A. W. Welch. Eng M 45:512-7 Jl '13

Remarkable review of building methods old and new. R. Grimshaw. Il Sci Am 109:112-3 Ag 9 '13

"Rush" construction work. J. L. Stuart. Eng N 70:818-9 O 23 '13

Storage system for construction plant: inspection and maintenance of wood and steel derricks, hoisting engines, ropes, slings and connections. Eng Rec 67:431-2 Ap 19 '13

System in the building industry. Arch & Bldg 45:171-2 My '13

See also Acoustics; Architectural; Arches; Architecture; Bathrooms; Brickwork; Cellars; Chimneys; Columns; Concrete construction; Concrete houses; Doors; Engineering; Exhibition buildings; Fireproof construction; Floors; Foundation soils; Foundations; Girders; Hangars; Hardware; Heating; High buildings; Masonry; Office build-

ings; Painting; Structural; Plumbing; Post office buildings; Quantity surveying; Retaining walls; Roofs; Scaffolding; Shipbuilding; Shoring and underpinning; Stairways; Steel construction; Strains and stresses; Tenement houses; Theaters; Towers; Steel; Truss work; Trusses; Vaulting; Ventilation; Walls; Wind pressure; Windows

Contracts

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Estimates

Better estimating. Arch Rec 34:482 N '13

Building. Fireproof. *See* Fireproof construction

Building accidents

Accident prevention in construction work. Sci Am S 75:362-3 Je 7 '13

Ordinary precautions in construction work. Eng Rec 67:433-4 Ap 19 '13

Protecting street traffic from falling objects during building construction at Dey street, New York city. plan Eng N 70:356 Ag 21 '13

Safety rules—construction operations. Eng & Min J 96:693 O 11 '13

Safety rules—structures. Eng & Min J 96:596 S 27 '13

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Building and loan associations

Apportionment of profits of building and loan associations. G; G. Scott. J Account 16:350-7 N '13

Building contracts

General provisions of building contracts with the Bureau of yards and docks of the navy department. C; F. Dingman. Eng Rec 68:476 O 25 '13

Injustice of including the heating, ventilating and power plant equipments in the general building contract. Dom Eng 65:81 O 18 '13

Problems of the contractor: organizing and executing the construction of a reinforced-concrete industrial building. Eng Rec 68:633-4 D 20 '13

Recovery for plumbing and installation of heating plant. Dom Eng 65:106 O 25 '13

Reform in construction specification practice. Concrete Cem 2:286 Je '13

Shipbuilding contracts. L. Feskett. Int Marine Eng 18:440-3 O '13

See also Bridge contracts; Contractors

Building failures

Building failure in Detroit due to workmanship. plan Concrete Cem 1:99-100 D '12

Cave-in of Randolph street, Chicago. Il Eng Rec 68:677-8, 715-6 D 13, 27 '13

Collapse of a reinforced-concrete frame in a building, Vancouver. B. C. A. P. Hueckel. Il plan Eng N 70: 290-1 Ag 14 '13

Collapse of Orpheum theater, New York city. Eng Rec 68:568 N 22 '13

Effect of stable refuse on concrete. E; Brooks. Il Eng N 70:317 Ag 14 '13

Failure of Orpheum theater building, New York city. plan Eng N 69:234 Ja 30 '13

Failures in building construction and their lessons. E; Godfrey. Il Arch & Bldg 45: 77-82, 329-33, 511-5 F. Ag. D '13

Long Beach (Cal.) auditorium disaster. Il Eng Rec 67:628-9 Je 7 '13

Long Beach, Cal. fatal failure of overloaded wooden floor. Eng N 69:1145 My 29 '13

Safety in concrete construction. C; F. Lewis. Eng Rec 67:251-2 Mr 1 '13

See also Concrete construction—Failures

Building inspection

Inspection of reinforced concrete work in Los Angeles. H. Albright. Concrete Cem 2:235-6 My '13

Rules for inspection of iron and steel structures. Ry & Eng R 53:305-7 Mr 29 '13

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Building laws

Builders' license law for Boston, Mass. Eng N 70:610-1 O 2 '13

Building laws—Continued.

- Heating and ventilating sections of Cleveland's new building code. Heat & Ven 10:42-3 D '13
 Illinois law for licensing mason contractors. Eng N 70:813 O 23 '13
 Limiting the height and area of buildings. Eng Rec 68:650-1 D 13 '13
 Logic as against precedent in writing building codes. Eng Rec 68:170-1 Ag 16 '13
 Municipal building laws in the United States. R. Fleming. Eng N 70:9-13 J1 3 '13
 Proposed Ohio state building code. Eng Rec 67:83-4 Ja 18 '13
 Proposed restrictions for heights of buildings in New York. Eng Rec 68:659-60 D 13 '13
 Revision of New York city's building code. Eng Rec 67:482-3 My 3 '13
 To limit building heights. Arch Rec 33:472-3 My '13

See also Bridge contracts; Building contracts; Building inspection

Building materials

- Analytical study of composition floors. H. M. Hooker. diag Concrete Cem 3:285-6 D '13
 Composition flooring; comparison of its most important characteristics with those of eighteen other materials. Eng Rec 68:635-6 D 6 '13
 Failures in building construction and their lessons: materials, processes and details. E. Godfrey. Arch & Bldg 45:511-5 D '13
 Fire, load and water test of floor arches. il Sci Am 109:115 Ag 9 '13
 Fire, load and water test upon cinder-concrete, terra-cotta and gypsum floor arches. H. Perrine. il plan Eng N 70:374-5 Ag 21 '13
 Fireproof construction: testing materials for their power of resisting extreme temperatures. H. Perrine. il Sci Am S 75:360-2 Je 7 '13
 Tests of three types of floor arches. il diag Concrete Cem 3:169-70 O '13
 Theory of penetration of heat in solid materials. L. R. Ingersoll. Eng N 70:866-9 O 30 '13
See also Adobe bricks; Briquets (iron); Cement; Concrete, Reinforced; Concrete blocks; Concrete tile; Gravel; Iron; Limestone; Stucco; Terra cotta; Timber; Wood

Building moving

- Moving \$600-ton building; San Francisco school transferred 1650 feet at rate of 40 feet daily. il Eng Rec 68:581-2 N 22 '13
 Using a barge for moving a fire house in service. il Eng Rec 67:13 Ja 4 '13

Building superintendence

- Efficient building superintendence. R. Cox. Arch & Bldg 45:13-5 Ja '13

Buildings

- Norton co.'s model administration building, Worcester, Mass. il Iron Tr R 52:919-21 Ap 17 '13
 Valuation of buildings. R. H. Overstreet. Eng N 70:516-8 S 11 '13

See also Bank buildings; Capitol buildings; Car houses; College architecture; Department stores; Exhibition buildings; Factories; High buildings; Hotels; Machine shops; Office buildings; Post-office buildings; Public buildings; Railroads—Buildings; Railroads—Stations; School-houses; Theaters

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- American-grown bulbs. G. E. Mitchell. il Sci Am S 76:396 D 20 '13

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- Bulkhead and pier for the new port of San Diego, Cal. il plan Eng N 69:498-500 Mr 13 '13
 Calculation of docks and bulkhead walls. diag Eng Rec 68:325-7 S 20 '13

Bull Run, Oregon

- Bull Run hydroelectric plant. C. E. Hickok. il Eng Rec 67:70-2 Ja 18 '13

Bullets

- Destructive effect of bullets. A. Sigmund. Sci Am 109:243 S 27 '13

Bungalows

- Evolution of domestic plans. C. E. Schermerhorn. il plans Arch & Bldg 45:221-69 Je '13

Bunker Hill & Sullivan mining & concentrating company, Kellogg, Idaho

- Report of manager for period June 1, 1911, to December 31, 1912. Eng & Min J 95:1200 Je 14 '13

Buoys

- Lighthouses and buoys of New York harbor. J. Pattison. il Int Marine Eng 18:1-4 Ja '13; Same. il Sci Am S 75:136-8 Mr 1 '13
 Marine lighting equipment of the Panama canal. J. Pattison. diag Eng N 69:1057-9 My 22 '13

Buoys, Concrete

- Floating concrete buoys in Jamaica. il Concrete Cem 2:186-7 Ap '13

Bureau of safety, Middle West utilities company

- Operating methods of the Bureau of safety of the Middle West utilities company. Elec Ry J 41:419 Mr 8 '13

Bureau of standards. See United States—Standards, Bureau of**Bush terminal company, So. Brooklyn, New York City**

- Modern industrial buildings. il Ind Eng 13:193-6 My '13

Bushings

- Making of bushings for drill jigs. F. B. Jacobs. diag Mach 19:12-5 S '12
 Pressing in piston valve bushings. V. T. Kropidowski. diag Am Eng 87:244 My '13

Business

- Business and the new administration. A. P. Nevins. Am Ind 13:13-4 Mr '13
 Military history and the science of business administration. E. D. Jones. Eng M 44:1-6, 185-90, 321-6 O-D '12
 One essential of success is system. il Dom Eng 64:68-9 J1 19 '13
 Organization of large commercial and industrial establishments. B. Orenstein. Eng M 44:588-96 Ja '13

See also Accounting; Advertising; Book-keeping; Business conditions; Chamber of commerce of U. S.; Competition; Corporations; Cost accounting; Credit; Department stores; Files and filing (documents); Government regulation of industry; House organs; Manufactures; Office management; Profit; Railroads—Records; Salesmen and salesmanship; Scientific management

Business, Education for

- Why there is place in business for men technically trained. J. Ritchie, jr. Sci Am 108:548 Je 14 '13

Business cards**Specimens**

- Few suggestions. Inland Ptr 51:384a-384h Je '13

Business conditions

- Address of president of National chamber of commerce, before National pipe and supplies assn. Dom Eng 63:189-91, 215-7 My 17-24 '13

- Business conditions abroad in 1913. map Am Ind 14:23-7 D '13

- Comments on business conditions at Chicago meeting of the American iron and steel institute. Iron Age 92:956-60 O 30 '13

- 4th general meeting of the American iron and steel institute, New York, May 23, 1913. Iron Age 91:1294-8 My 29 '13

- Judge Gary on majesty and humanity of the law. Iron Tr R 52:1253-4 My 29 '13

- Judge Gary tells why business halts. Iron Tr R 53:810-2 O 30 '13

- Railway buying and general prosperity. E. B. Leigh. Ry Age 53:1161-2 D 19 '13; Same. Ry & Eng R 53:1174-5 D 20 '13

Business men

- Business men must organize for legislation. Iron Tr R 53:1104-6 D 18 '13

- Need of business men in politics. A. B. Cruikshank. Am Ind 13: 17 Ap '13

Business records. See Cost accounting; Foundry records; Railroads—Records

Butchers. See Meat markets

Butte, Montana

Mineral association at Butte. D. C. Bard and M. H. Gidel. *Am Inst Min E Bul* 80:1627-31 Ag '13

One deposits at Butte. R. H. Sales. *diags Am Inst Min E Bul* 80:1523-1626 Ag '13

Butte, Anaconda & Pacific railway

Electrification. R. E. Wade. *il Am Inst Min E Bul* 83:2629-34 N '13

Butter

Flavor of butter injured by metals. *Sci Am* S 76:334 N 22 '13

By-laws. See Corporations—By-laws

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Cable railroads

Grade reduction on street railways. C. H. Reeves. *il Eng N* 63:72-6 Ja 9 '13

Improvements to a cable road in Seattle. *il plan Elec Ry J* 41:1108-9 Je 21 '13

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Cables, Submarine

Gulf of Georgia submarine telephone cable. E. P. La Belle and L. P. Crim. *il Am Inst E E Pro* 32:1818-31 S '13

Morse signals from London to New York. *Sci Am* 108:192 Mr 1 '13

Radical improvement in cabling: eliminating the siphon recorder. H. T. Wade. *il maps diags Sci Am* 109:392-4 N 22 '13

Submarine transmission line in the Baltic sea. *il Elec W* 62:280-1 Ag 9 '13

Cableways

Aerial cableway into the vale of Kashmir. *Ry & Eng R* 53:1069 N 15 '13

Cableway for railway lumber cars. M. M. Cooke. *il Eng N* 70:339-40 N 6 '13

Cableway with side-swinging towers. *il Eng N* 70:1634 N 20 '13

Landing cableway, Nome, Alaska. *il Eng N* 70:466 S 4 '13

75-mile aerial cableway across the Himalaya mountains. *Eng N* 70:328 N 6 '13

Single-track cableway in Sardinia. E. Praetorius. *il Eng & Min J* 96:1009-10 N 29 '13

Unusual design of overhead tramway at a Utah mine. W. R. Elliott. *il Eng & Min J* 96:293-6 Ag 16 '13

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Cabriolet. See Automobiles—Bodies

Caissons

Foundations for the Hale's Bar dam; pneumatic caissons used for excavating seamy rock for a hydroelectric project on the Tennessee river. *il Eng Rec* 67:178-80 F 15 '13

Pneumatic caissons for Scotia dam. plans *Eng Rec* 68:248-9 Ag 30 '13

Rock grouting and caisson sinking for Hales Bar dam. *il plans Eng N* 70:949-56 N 13 '13

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Calcium chloride

Making calcium chloride brine. M. B. Smith. *Power* 37:56 Ja 14 '13

Calcium peroxide

Peroxides and per-salts. A. S. Neumark. *il Sci Am* S 75:221 Ap 5 '13

Calculating

Exponential computer. L. Ross. *Eng N* 69:366-7 F 20 '13

Power plant log calculator. W. N. Polakov. *plan Power* 37:596-7 Ap 29 '13

Calculating machines

Controlled-key adding and calculating machine. *Sci Am* 109:15 Jl 5 '13

Electric calculating machine. *il Elec W* 62:1127 N 29 '13

Hollerith tabulating machine in the business office. S. G. Koon. *il Mach* 20:25-6 S '13

Improved calculating machine. *il Sci Am* S 76:237 O 11 '13

Keeping books by machine: the punched card as a saver of brain energy. H. S. McCormack. *il Sci Am* 108:194-5 Mr 1 '13

New Veeder counters. *il Ind Eng* 13:402-3 S '13

Tabulating statistics and accounts by machinery. *Elec Ry J* 41:853 My 10 '13

Veeder set-back and locked-wheel counters. *il Power* 38:637 N 4 '13

See also Chronometers

Calculators. See Calculating machines

California

Architecture

Country house in California. H. D. Croly. *il Arch Rec* 34:483-519 D '13

Garden apartments of California; Irving J. Gill, architect. E. M. Roerbach. *il plan Arch Rec* 34:520-30 D '13

Industries and resources

Attempt to restrict gold dredging in California. L. H. Eddy. *Eng & Min J* 95:626 Mr 22 '13

California asphaltum deposits and methods of mining. E. A. Ward. *il Sci Am* 109:427-8 D 6 '13

Hydro-electric development in California. J. A. Britton. *il Sci Am* S 76:72-4 Ag 2 '13

Metal mines production in California, in 1912. *Eng & Min J* 96:890 N 8 '13

Oil industry of California. *Eng N* 69:254-6 F 6 '13

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Calorimeters and calorimetry

Estimating heat value of fuel. (Engineers' study course) *Power* 37:835-7 Je 10 '13

Féry bomb calorimeter: direct-reading, thermo-electric instrument for industrial usage. R. S. Whipple. *Eng M* 44:619-21 Ja '13

Steam calorimeters. (Engineers' study course) *Power* 38:410-1 S 16 '13

Thermometric lag. D. R. Harper, 3d. *U S Bur Stand Bul* 8:702-11 Mr 1 '13

Throttling calorimeters. *diags Power* 38:448-9 S 23 '13

Calumet-Sag canal

Construction of the Calumet-Sag canal. E. J. Kelly. *il map Eng N* 69:146-50 Ja 23 '13

Cambria steel company

Vice president Replogle testifies in steel corporation suit. *Iron Tr R* 53:1128-9 D 18 '13

Cambridge, Massachusetts

Investigation of Cambridge water supply. *Eng Rec* 67:21-2 Ja 4 '13

Cameras

Dodges with lenses and tripod stands. *Sci Am* S 76:304 N 8 '13

Electrically operated slot-machine camera. *il Elec W* 62:102 Jl 12 '13

Human eye and the photographic camera. A. Gleichen. *il Sci Am* S 76:51 Jl 26 '13

Slit camera. *il Sci Am* 108:153 F 15 '13

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Cameron septic tank

Cameron septic tank decision. S. H. Crosby. *Eng Rec* 67:195-6 F 15 '13

Cameron septic tank decision in Knoxville case. *Eng Rec* 67:140 F 1 '13

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Campagna di Roma

Rehabilitating the Roman Campagna. *Sci Am* 108:481 My 24 '13

Campanile, Venice

New campanile at Venice. *Sci Am* 108:152 F 15 '13

Roller-bearing support of figure on the Campanile. *plan Eng Rec* 67:111 Ja 25 '13

Camphor

Camphor industry in Formosa. *Sci Am* S 76:288 N 1 '13

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Cams

Jig for milling cam slots. C. F. Meyer, diags Mach 19:54-5 S '12
Undulator: a modified reciprocator for ornamental lathes. A. S. Rogers, il Sci Am S 76:14-6 J1 5 '13

Canada**Boundaries**

Settlement and survey of the Alaskan boundary. J. A. Flemer, il map Eng M 45:209-26 My '13

Industries and resources

Fire-clay deposits of Canada. H. Ries, il map Am Inst Min E Bul 75:129-12 Mr '13

Canadian electrical association

Papers and discussions at the 23d annual convention, Toronto, 1913. Elec W 62:69-71, 183-5 J1 12, 26 '13
23d annual convention, Toronto, June, 1913. Elec W 62:9-11 J1 5 '13

Canadian mining institute

Annual meeting, Ottawa, 1913. Colliery 33: 379 F '13

Canadian Northern railway

Canadian Northern Ry. II; K. Wicksteed, maps Eng N 70:68-73 J1 10 '13

Canadian Pacific railway

Canadian Pacific railway shops at Ogden, il Eng Rec 67:658 Je 14 '13
Expenses and revenues, map Ry Age 55:400-1 S 5 '13
Operating organization on the Canadian Pacific, Ry Age 54:19-22 Ja 3 '13
Shops near Calgary, Alberta, il plan Ry & Eng R 53:551-5 Je 14 '13
32d annual report, Ry Age 55:438-40 S 5 '13

Canal boats

Comparison of freight train and canal boat resistance. H. A. Houston, Ry Age 55:958 N 21 '13

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Operating-control system of the Panama canal locks, il diag Eng N 70:1323-9 D 25 '13
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Canals

Canals in Illinois. Eng Rec 67:87 Ja 25 '13
Commercial and military value of the intra-coastal waterway. Sci Am 109:176 S 6 '13
Construction of the Calumet-Sag canal. E. J. Kelly, il map Eng N 69:146-50 Ja 23 '13
Intra-coastal canal system for the Atlantic seaboard, map Sci Am 109:185 S 6 '13
New Welland ship canal, plan map Eng N 70:598-602 S 25 '13
New York state barge canal. N. E. Whitford, Sci Am 108:377-9 Ap 26 '13
Present status of the New York state barge canal. Eng N 69:181-2 Ja 23 '13
Proposed Welland ship canal, map Eng Rec 68:35-6 J1 12 '13
Protecting sandy canal banks. Eng Rec 68: 498-9 N 1 '13
Rehabilitation of the Illinois & Michigan canal. Eng Rec 67:92 Ja 25 '13
Relining the Mauvages tunnel on the Marne ship canal. F. B. Mann, plan Eng Rec 67: 203-4 F 22 '13
Surveys and estimates for proposed Black river canal, map Eng Rec 68:157 Ag 9 '13
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Relation of outcrops to ore at Cananea, M. J. Elsing, Eng & Min J 95:357-62 F 15 '13

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Scientific advancement of the canning industry. R. T. Mohan, il Sci Am S 76:40-3 J1 19 '13

Canning and preserving

Scientific advancement of the canning industry. R. T. Mohan, il Sci Am S 76:40-3 J1 19 '13

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Deflection at free end of cantilever beam for load of 500 pounds, diags Mach 20:314 D '13

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Expensive line built according to British standards, Eng Rec 67:216-7 F 22 '13

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Capital

High price of capital, Eng N 70:618-9 S 25 '13
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Capitalization

Capitalization in headings. F. H. Teall, Inland Ptr 51:578-9 J1 '13
Inconsistency in capitalizing, Inland Ptr 50: 727-8 F '13
Use of capitals, W. P. Root, Inland Ptr 50: 863 Mr '13

Capitol buildings

Concrete plant for the Utah capitol building, il Eng Rec 68:526 N 8 '13
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Car building. See Cars**Car cleaning**

Scientific cleansing of railway coaches. J. T. A. Walker, il Ry Age 54:328-30 F 21 '13
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Car couplings

Final report of the Block signal and train control board, 1912, Ry & Eng R 53:213-4 Mr 8 '13
Mounting of radial couplers. A. L. Price, Elec Ry J 41:372-3 Mr 1 '13
Radial coupler and draft rigging for electric cars, il Elec Ry J 42:344 Ag 30 '13

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Fender and wheel-guard tests in Vancouver, Elec Ry J 42:68-9 N 1 '13
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 Provisions for electric lighting in steel passenger cars. H. A. Currie. Am Soc M E J 35:834-7 My '13
 Specification for postal car lighting. Ry Age 54:149-50 Ja 24 '13; Same. Am Eng 87:97-8 F '13
 Tests of passenger car lighting by Lake Shore & Michigan Southern. Ry Age (Mech ed) 87:607-8 N '13
 Train lighting. H. A. Currie and B. F. Wood. bibliog Am Soc M E J 35:99-93 Ja '13
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- Painting steel passenger cars. C. D. Young. il diag Am Soc M E J 35:823-33 My '13; Same cond. Ry Age 54:830-2 Ap 11 '13; Same cond. Am Eng 87:245-7 My '13; Same cond. Ry & Eng R 53:418-9 My 3 '13
 Theory and practice of painting a modern steel passenger car. J. W. Lawrie. Sci Am S 76:230-1 O 11 '13

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- Canadian Pacific all-steel trucks. il diags Ry Age 55:1163-5 D 19 '13
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- Car wheel failures. G. W. Lyndon. Ry Age 54:1021-2 My 9 '13; Same. Ry Age (Mech ed) 87:329-30 Je '13
 Car wheel flanges and treads. A. Stucki. Ry Age (Mech ed) 87:523 O '13
 Cast iron wheels. by A. A. Hale, and Steel wheels. by M. D. Hayes: abstracts. Ry Age 54:1075-6 My 16 '13
 Chilled cast iron car wheel. G. W. Lyndon. Iron Age 91:1110-1 My 8 '13
 Chilled iron car wheel. A. A. Hale. Ry & Eng R 53:730-2 Ag 2 '13
 Chilled iron car wheels for electric railway service. W. A. Bennett. il Elec Ry J 42:1098-1100 N 22 '13
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 Discussion of the steel wheel. D. F. Crawford. Ry & Eng R 53:1133 D 6 '13
 Future of the chilled car wheel. P. H. Griffen. Am Inst Min E Bul 82:2593-2604 O '13
 History and problems of the steel wheel. J. C. Neale. Ry & Eng R 53:1131-2 D 6 '13
 Increasing number of car wheel failures. Iron Age 91:588-9 Mr 6 '13
 Interurban car axles. Elec Ry J 42:143-4 J1 26 '13

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- Locating defective car wheels. *il* Am Eng 87:152-3 Mr '13
- Manufacture of chilled iron car wheels. F. C. Weber. *Met & Chem Eng* 11:92-4 F '13
- Removing flat spots from car wheels. C. A. Curtis, jr. *diags* Am Eng 87:201 Ap '13
- Status of the steel carwheel. J. C. Neale. *Iron Age* 92:1042-5 N 6 '13
- Steel-tired, forged and rolled-steel wheels. M. D. Hayes. *Elec Ry J* 42:1101-4 N 22 '13
- Study of car wheel flanges and treads. L. W. Wallace. *Ry Age (Mech ed)* 87:497-503 S '13
- Wreck caused by a broken tire. *il* Ry Age 55:814-6 O 31 '13
- Wrought steel wheel. D. F. Crawford. *Ry Age* 55:902 N 11 '13

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- New international diamond carat of 200 milligrams. G. F. Kunz. *Am Inst Min E Bul* 79:1225-45 J1 '13; *Same*. *Sci Am S* 76:82-3, 98-9 Ag 9-16 '13

Carbon

- Carbon electrodes for electrolytic cells. J. Härdén. *Met & Chem Eng* 11:242-4 My '13
- Electricity direct from coal: problem of the galvanic cell with carbon consumption. E. Baur. *Sci Am S* 75:346-8 My 31 '13
- Metallography of carbon. *Met & Chem Eng* 11:619 N '13
- Notes on manufacture and properties of carbon bricks. *Met & Chem Eng* 11:82 F '13
- Removing carbon deposit with oxygen. *il* *Sci Am* 109:125 Ag 16 '13
- Resistance of carbon contacts. *Elec W* 61:383 F 22 '13
- Some effects of temperature upon the resistance of graphite and carbon. E. F. Northrup. *Met & Chem Eng* 11:275 My '13
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Carbon dioxide

- Refrigeration with carbon dioxide. *Power* 37:572 Ap 22 '13
- See also* Boilers—Testing

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- Manufacture of carbon disulphide: advantages of the electric furnace. E. R. Taylor. *il* *Sci Am S* 75:410 Je 28 '13

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- Deadly monoxide. H. R. Callaway. *Power* 37:385-6 Mr 18 '13
- Deadly monoxide. L. H. Morrison; H. R. Callaway. *Power* 37:720 My 20 '13
- Testing for carbon monoxide. *Colliery* 34:14-5 Ag '13

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- Carboline. C. F. Adams. *Power* 38:730 N 18 '13

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- Carborundum and alundum. S. A. Cochell. *Metal Ind n s* 11:249-50 Je '13
- Carborundum refractories. F. J. Tone. *Met & Chem Eng* 11:484-6 S '13
- Outcome of the carborundum patent suit between Electric smelting & aluminum co. and the Carborundum co. *Met & Chem Eng* 11:203-6 Ap '13

Carboys

- Interesting safety device for tilting carboys. *il* *Iron Age* 91:533 F 27 '13

Carbureters

- A. C. A. tests Sunderland carbureters. *diag* *Automobile* 29:553 S 25 '13
- Can carbureters handle different fuels satisfactorily? Experts think not. *Automobile* 29:156-7 J1 24 '13
- Carburetor adjustments. A. L. Brennan, jr. *Power* 37:418 Mr 25 '13
- Carbureter manufacturers on carburetion. *Automobile* 28:638-9 Mr 13 '13
- Carburetor troubles and symptoms. A. L. Brennan, jr. *Power* 38:923 D 30 '13
- Carbureters for 1913. plans *Automobile* 28:148-61 Ja 9 '13

Carburetion. R. W. A. Brewer. *Automobile* 28:168-9, 300-1 Ja 9, 23 '13

Cox carburetor. *diags* *Automobile* 28:951 My 1 '13

European carburetor development for 1911. *il* R. W. A. Brewer. *Automobile* 29:1103-5, 1111 D 11 '13

Exhaust gas analysis. *Automobile* 28:512-3 F 20 '13

Floaf chamber design and requirements. R. W. A. Brewer. *Automobile* 29:501-5 S 18 '13

From carburetor to vaporizer. *diag* *Automobile* 28:410-1 F 6 '13

Harroun kerosene carburetor. *diag* *Iron Age* 92:1110 D 25 '13

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Holley carburetor. *diag* *Automobile* 29:287-8 Ag 11 '13

Indicators for spray carbureters. C. Bergman. *diags* *Am Soc M E J* 35:327-31 F '13

Laws of the motor windpipe. R. W. A. Brewer. *Automobile* 29:1146-7 D 18 '13

Muir carburetor controls air and gas automatically. *diag* *Automobile* 29:683 O 9 '13

New Rayfield. *il* *Automobile* 29:1205 D 25 '13

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Test E. C. B. carburetor on many fuels. *diag* *Automobile* 28:998-9 My 8 '13

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Vaporizing kerosene by partial combustion. *Sci Am* 109:118-9 N 29 '13

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Carburetion, Theory of. F. A. Heath. plan *Automobile* 28:47 Ja 2 '13

Carburizing materials

Thermal conductivity of carburizing materials. *Ind Eng* 13:14 Ja '13

Card indexes

Encyclopaedia on the card-index system. *Sci Am* 109:213 S 13 '13

Card system in business

Power-plant repair complaint and work-order blanks. *Elec W* 62:1221 D 13 '13

Simple system for filing and handling tracings and prints. F. Buch. *Eng M* 45:546-61 J1 '13

Why the municipal office needs modern system. E. H. Gilman. *Munic Eng* 44:499-504 Je '13

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Carnotite

Carnotite. T. F. V. Curran. *Eng & Min J* 96:1165-7, 1223-5 D 20-27 '13

Carnotite industry. *Met & Chem Eng* 11:586-8 O '13

Preliminary report on uranium, radium, and vanadium. R. B. Moore and K. L. Kithil. *il* map U S Bur Mines Bul 70:9-42 '13

Radium from American carnotite. *Eng & Min J* 95:1106 My 31 '13

Uranium and radium situation. C. L. Parsons. *Met & Chem Eng* 11:275-6 My '13; *Same*. *Sci Am S* 75:374-5 Je 14 '13

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Carob bean tree. *Sci Am* 108:42 Ja 11 '13

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Carriage and wagon making

Technical training of body designers. *Automobile* 28:897 Ap 24 '13

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Carriers

- Huge piece of engineering work: railway valuation act. Eng N 69:476-8 Mr 6 '13
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Proposed arbitration bill. Ry Age 54:1328-30 Je 13 '13
Railway valuation act: text. Eng N 69:482-3 Mr 6 '13
Regulation on sanitation as related to public carriers. W. C. Rucker. Elec Ry J 42:853-4 O 17 '13
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Application of safety appliances to cars. F. J. Carthy. Am Eng 87:147-9 Mr '13
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Bettendorf underframe. il Ry & Eng R 53:544 Je 7 '13
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Car roofs. G. W. Rink. Ry & Eng R 53:1207 D 27 '13
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Center-entrance trail cars for Memphis. il Elec Ry J 41:299-300 F 15 '13
Chief interchange car inspectors' and car foremen's assn. 14th annual convention. Ry Age (Mech ed) 87:495-6 S '13
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47th annual convention of the Master car builders' assn., Atlantic City, June, 1913. Ry & Eng R 53:595-8, 607-11, 627-8, 632-4 Je 21-28 '13
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Reinforced end construction for Pullman car equipment. il diags Ry Age (Mech ed) 87:504-5 S '13; Ry & Eng R 53:1128-9 D 6 '13
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Tables for designing center sills. C. H. Faris. Ry Age (Mech ed) 87:444-5 Ag '13
Test car and equipment of Bureau of standards. H. T. Wade. il Sci Am 109:468 D 20 '13

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- Car repair notes from the Norfolk & Western. il Ry Age (Mech ed) 87:442-3 Ag '13
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- Advantages of derricks for handling material. A. S. Markiev. il Ry Age 54:159 Ja 24 '13
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Derrick cars and wrecking cranes for electric railways. il Eng N 69:1060-1 My 22 '13
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- Cast-steel double body bolsters, platforms and end frames for steel cars. C. T. Westlake. *Am Soc M E J* 35:845-50 My '13; Same. *Ry & Eng R* 53:396-7 Ap 26 '13
- Development and status of the steel passenger car. *Eng Rec* 67:454 Ap 26 '13
- Development of steel passenger equipment. *Ry Age (Mech ed)* 87:650 D '13
- Fifty-ton steel hopper car. *il diag Ry Age (Mech ed)* 87:430-41 Ag '13
- Metal sheathing for steel passenger coaches. *Ry & Eng R* 53:364-5 Ap 19 '13
- Method of designing a steel gondola car. L. W. Wallace. *Ry Age (Mech ed)* 87:381-6 Jl '13
- Narrow-gage combination car for the Pacific coast railway. *Elec Ry J* 41:899 My 17 '13
- New steel car plant of Haskell & Barker car co. at Michigan City, Ind. *il diag Iron Age* 91:590-2 Mr 6 '13
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- Ninety-ton high side gondola car: developed on the Norfolk & Western and equipped with specially designed six-wheel equalized trucks. *il plans Am Eng* 87:35-10 Ja '13; Same. *Ry Age* 54:16-9 Ja 3 '13
- Problems of steel passenger car design. W. F. Kiesel, jr. *Am Soc M E J* 35:791-5 My '13; Same. *Ry & Eng J* 53:346 Ap 12 '13
- Progress of steel passenger train equipment. *Ry Age* 55:269 Ag 15 '13
- Provision for electrical equipment on steel motor cars. F. W. Butt. *Am Soc M E J* 35:838-40 My '13; Same. *Ry & Eng R* 53:120 My 3 '13
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- Safety in travel as related to iron and steel equipment. *Iron Tr R* 53:302-3 N 13 '12
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- Steel car as a life saver. *il Sci Am* 109:224 S 20 '13
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- Steel interior finish for steel passenger cars. F. Koch. *Am Soc M E J* 35:818-22 My '13; Same. *Ry & Eng R* 53:417-8 My 3 '13
- Steel passenger car and existing passenger equipment. *Ry & Eng R* 53:999, 1040-1, 1084-5 O 25, N 8, 22 '13
- Steel passenger cars and safe railway practice. *Eng N* 70:564-6 S 18 '13
- Steel passenger car design: papers and discussion. *Am Soc M E J* 35:785-870 My '13; Same. *Ry Age* 54:829-35, 875-80 Ap 11-18 '13; Same cond. *Am Eng* 87:257-63 My '13; Discussion. *Am Soc M E J* 35:971-7 Je '13
- Steel passenger cars and safe railway practice. *Eng N* 70:564-6 S 18 '13
- Steel passenger cars in a wreck. *il Ry Age (Mech ed)* 87:561-2 O '13
- Steel passenger equipment cars, Norfolk & Western Ry. *il Ry & Eng R* 53:557 Je 14 '13
- Steel passenger train car situation: various features which may affect the extent and rate at which such cars will be introduced. *il Ry Age* 55:947-52 N 21 '13
- Strength of steel cars. *Eng N* 70:30 Jl 3 '13
- Underframes for steel passenger cars. J. M. Ames. *diag Am Soc M E J* 35:796-801 My '13; Same. *Ry & Eng R* 53:408-9 My 3 '13

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- Calculating mixtures for malleable cast iron. H. Hemenway. *Foundry* 41:451-5, 497-501 O-N '13
- Cast iron for machine-tool parts. H. M. Wood. *il Am Soc M E J* 35:1631-41 N '13; Same cond. *Iron Age* 92:1312-4 D 1 '13; Same cond. *Foundry* 41:523-6 D '13
- Cast iron for wearing surfaces. *Am Mach* 38:755 My 1 '13
- Cast iron pipe prices from 1900 to 1912. *Iron Age* 91:49 Ja 2 '13
- Chilled cast iron used for machine tools. H. M. Wood. *il Am Mach* 38:146-8 Ja 23 '13
- Cleansing effect of titanium on cast iron. B. Stoughton. *Iron Tr R* 52:473-4 F 20 '13
- Close-grained soft cast iron. J. J. Porter. *Eng M* 41:262-4 N '12
- Corrosion of cast iron reviewed. R. H. Gaines. *Iron Age* 91:1358-9 Je 5 '13
- Effect of high carbon on the quality of charcoal-iron. J. E. Johnson, jr. *il Am Inst Min E Bul* 74:173-214 F '13; Discussion. 77: 341-64 My '13
- Gray iron mixtures for motor castings. H. B. Swan. *il Foundry* 41:474-8 N '13; Same. *Iron Age* 92:893-7 O 23 '13; Same. *Iron Tr R* 53:363-8 N 27 '13
- Influence of silicon on corrosion of cast iron. J. N. Friend and C. W. Marshall. *Foundry* 41:307-8 Ag '13
- Intricate forms of cast iron explained. *il Iron Age* 92:1434-5 D 25 '13
- Liquid contraction of cast iron. *Iron Age* 92: 351 Ag 11 '13
- Malleable iron castings for automobile work. E. Touceda. *il Iron Age* 91:1246-9 Je 12 '13; Same. *Iron Tr R* 52:1358-63 Je 12 '13; Same. *Automobile* 28:1260-3 Je 19 '13; Same. *Foundry* 41:276-80 Jl '13; Same cond. *Ind Eng* 13:408-9 S '13
- Manganese in cast iron. W. J. Keep. *Foundry* 41:358-9 S '13
- Mayari cast iron for engineering purposes. *Eng Rec* 67:31 Ja 11 '13
- Notes on cast-iron. A. Sauvour. *il Am Inst Min E Bul* 75:593-24 Mr '13; Discussion 77: 941-64 My '13
- Oxidized finish on gray iron. *Foundry* 41: 104-5 Mr '13
- Preparing gray iron for polishing and plating. J. H. Hansjosten. *Metal Ind n s* 11: 118-9 Mr '13
- Relation between the composition and physical properties of cast iron. H. M. Howe. *Eng & Min J* 96:511 S 13 '13
- Scientific methods in the study of cast iron. *il Iron Age* 91:595-8 Mr 6 '13
- Seasoning cast iron. F. W. Shaw. *Mach* 19: 55 S '12
- Specifications for machinery castings. J. J. Porter. *Iron Age* 91:94-5 Ja 2 '13
- Unusual gray iron stove plate casting. W. J. Keep. *il Foundry* 41:78-9 F '13
- Wittorff's iron-carbon equilibrium diagram. B. Stoughton. *il Am Inst Min E Bul* 74: 227-37 F '13

See also Car wheels; Foundry practice; Iron; Iron founding; Pig iron

Cast iron ware

- Enameling process for cast iron sanitary ware. N. E. Frissell. *plan Foundry* 41:220-3 Je '13

Castings, Steel. See Steel castings**Casualty insurance. See Insurance, Casualty****Cataloging**

See also Files and filing (documents); Indexing

Catenary. Theory of

- Theory of the non-elastic and elastic catenary as applied to transmission lines. C. A. Pierce, F. J. Adams and G. I. Gilcrest. *Am Inst E E Pro* 32:1374-91 Je '13

Cathedrals

- Cathedral of the Incarnation, Baltimore, Md. il plans Arch Rec 33:476-91 Je '13
 Saving a cathedral with a diver: how Winchester was furnished with a new foundation, J. W. Overend, il Sci Am 108: 428 My 10 '13

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- Cathode rays from incandescent lamps, il Sci Am 109:124 Ag 16 '13

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- Accidents on Catskill aqueduct, Eng Rec 67: 320 Mr 22 '13
 Camp Hill View sanitation, A. W. Tidd, il Eng N 70:752-9 O 16 '13
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 City tunnel and conduits of the Catskill aqueduct, W. E. Spear, Eng Rec 68:333-4 S 20 '13
 Concreting the Saries tunnel of the Catskill aqueduct, il Eng Rec 68:428-9 O 18 '13
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 Creating a subterranean river ninety miles in length: how Catskill water is brought to New York, il Sci Am 108:198-200 Mr 1 '13
 Electric power in building the world's greatest aqueduct, J. M. Matthews, il Eng M 44:161-84 N '12
 Monolithic construction of heavily reinforced, 17-foot circular aqueduct, H. W. Nelson, il plan Eng Rec 67:502-5 My 3 '13
 Narrows siphon of the Catskill aqueduct, A. D. Flinn, diags Eng Rec 68:317-8 S 20 '13
 Story of some different steel castings, E. C. Jensen, il diags Iron Age 92:763-8 O 9 '13
 Supplying a metropolis with mountain water: mining operations in the heart of New York, il Sci Am 108:201-2 Mr 1 '13
 Transporting a 46-ton cover plate, il Sci Am 109:307 O 18 '13
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- Printers of note, W. C. Bloech, Inland Ptr 50:841-3 Mr '13

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- What Cedar Rapids has done in five years under commission plan of government, L. Roth, il Munic Eng 44:448-50 My '13

Ceilings

- Molding sand cores for floor construction and artistic ceiling, F. Squires, il Concrete Cem 2:213-8 My '13

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- Cellar space made available by the use of prismatic glass, J. Chittick, il Sci Am S 76:107 Ag 16 '13

Celluloid

- How non-inflammable celluloid is actually used for automobiles and aeroplanes, Automobile 28:1022-3 My 15 '13

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- Action of alkali and sea water on cements, Ry Age 55:514 S 19 '13
 Action of the salts in alkali water and sea water upon cements; abstract of Technologic paper no. 12, P. H. Bates and others, J Fr Inst 175:65-7 Ja '13; Same, Eng Rec 67:691-2 Je 21 '13; Same, Munic Eng 45:58-9 Jl '13; Same, Eng M 45:746-8 Ag '13; Same, Met & Chem Eng 11:442-3 Ag '13
 Action of various substances on cement mortars, Concrete Cem 3:59 Ag '13
 Action of various substances on cement mortars, R. K. Meade, Eng N 70:21-3 Jl 3 '13; Same, Eng Rec 68:20-1 Jl 5 '13
 Blended or sand-cements; results of the study and experience of U. S. reclamation service, R. R. Coghill, Eng N 69:1270-3 Je 19 '13
 Bulk shipments of cement, G. Wilson, il Concrete Cem 2:27-8 Ja '13
 Cement industry in the United States; effect of tariff, Eng Rec 67:59 Ja 18 '13

Cement industry prospered in 1912, Eng & Min J 95:214 Ja 25 '13

Cement instead of fire clay in hearth and bosh of Sheridan blast furnaces, Iron Age 91:429 F 13 '13

Cement manufacture, Am Soc M E J 35:257-78 F '13

Cement on the Pacific coast, Concrete Cem 2:23 Ja '13

Concrete in alkali soils, Concrete Cem 3:69-72 Ag '13

Damage to bulk cement and sacked cement by wetting in transit, J. H. Libberton, Eng N 70:251 Ag 7 '13

Economical construction with bulk cement, L. H. Libberton, il diag Concrete Cem 3:62-3 Ag '13

Economy of bulk cement, G. Wilson, Concrete Cem 2:243 My '13

Growth of cement industry on Pacific coast, C. A. Newhall, il Concrete Cem 2:196-8 Ap '13

Growth of the cement industry on Pacific coast, Eng Rec 68:474 O 25 '13

Handling bulk cement in a small plant, plan diags Concrete Cem 3:270-1 D '13

Handling cement in bulk, J. H. Libberton, il Eng Rec 68:63-4 Jl 19 '13

International cement questions from a French viewpoint, Eng N 69:314 F 13 '13

Oxy-chloride cement formulas, W. C. Edwards, jr, Concrete Cem 2:184-5 Ap '13

Sand-cement as used by the U. S. reclamation service, Eng N 69:562-3 Mr 20 '13

Shipment of cement in bulk, Concrete Cem 2:160 Ap '13

Storage of explosives, plans Concrete Cem 2: 19-21 Ja '13

United States cement statistics for 1912, Eng N 69:1200 Je 5 '13

Unloading car of bulk cement in one hour with one man, il Concrete Cem 3:147-8 S '13

Use and care of cloth cement sacks, Concrete Cem 2:sup 79 My '13

See also Concrete; Portland cement; Stucco

Exhibitions

Cement show at the Panama-Pacific international exposition, C. E. Van Barneveld, Concrete Cem 3:480 O '13

Chicago's sixth cement show, Jan., 1913, Concrete Cem 2:87 F '13

Some preferences as to coming cement shows, Concrete Cem 2:249 My '13

Cement plants

Cement and hydrated lime plant of Tide-water Portland cement co, R. K. Meade, il plan Eng N 70:858-64 O 30 '13

Depreciation and obsolescence in Portland cement plants, H. Struckmann, Am Soc M E J 35:262-4 F '13; Discussion, 35:264-75 F '13

Depreciation factor in the cost of producing Portland cement, F. H. Lewis, Am Soc M E J 35:257-61 F '13

Dust control in cement manufacture: Cottrell electrical precipitation processes, W. A. Schmidt, Eng M 46:121-3 O '13

Metairie Falls, Wash.—plant of the Inland Portland cement co, M. W. Krejci, il plan Am Inst Min E Bul 79:1305-14 Jl '13

New cement plant in Vancouver; concrete sheet piling and heavy construction at precipitous site, il plan Eng Rec 68:123-4 Ag 2 '13

Southwestern Portland cement work, El Paso, Texas, C. A. Smith, il plan Eng & Min J 96:719-23 O 18 '13

Use of motors in cement mills, Eng Rec 67:207 F 22 '13

Cement storage

Storage of cement in winter, Concrete Cem 2:19 Ja '13

Cement testing

American soc. for testing materials: papers on cement and concrete, Eng N 70:40-2, 74 Jl 3-10 '13

Apparatus for determining consistency, C. M. Chapman, il Concrete Cem 3:8-9 Jl '13

Autoclave test, G. J. Ray, Eng N 70:272-3 Ag 7 '13

Cement testing—Continued.

- Autoclave test for cement. Eng Rec 68:13-9 J1 5 '13
- Autoclave test for cement. II. J. Force. Ry & Eng R 53:61-3 Ja 18 '13
- Automatic briquette testing record. T. Y. Olsen. II Concrete Cem 1:88 D '12
- Developments in the autoclave test for volume constancy of cement. Eng N 70:82-5 J1 10 '13
- Distribution of stress in a cement briquette. E. G. Coker. II Sci Am S 75:388-9 Je 21 '13
- Sieve test for cement that insures uniformity in fineness. G. J. Griesenauer. Eng N 70:1296-7 D 25 '13
- Simple apparatus for testing cement prisms. H. C. Johnson. Concrete Cem 3:89 Ag '13
- Tests of sand cement by the Reclamation service; from C. H. Paul's notes. Eng Rec 67:343 Mr 29 '13
- Tests of the strength of cement. Concrete Cem 2:257-8 My '13

Cement users, National association of. See National association of cement users

Cemeteries

- Municipal cemetery accounts. D. C. Eggles-ton. J Account 15:174-84 Mr '13

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Census**United States**

- Census bureau. Eng & Min J 56:607-8 S 27 '13
- Work of the Census bureau. Eng & Min J 96:610 S 27 '13

Central electric railway accountants' association

- Proceedings and papers of annual meeting at Cleveland, Ohio, Dec. 12-13, 1913. Elec Ry J 42:1275-80 D 20 '13

Central electric railway association

- List of names of members of committees, 1913. Elec Ry J 41:594-5 Mr 29 '13
- Papers and proceedings of meeting at Indianapolis, Nov. 20-21, 1913. Elec Ry J 42:1098-1106 N 22 '13
- Papers at June meeting on board the steamer City of St. Ignace. Elec Ry J 41:1163-8; 42:20-30 Je 28-J1 5 '13
- Proceedings of annual meeting, 1913, abstracts of papers and reports on car equipment maintenance, fare registration, coupler installation, interline freight, etc. Elec Ry J 41:370-80 Mr 1 '13
- Proceedings of convention held on board the steamer St. Ignace, June, 1913. Elec Ry J 42:17-9 J1 5 '13

Central electric traffic association

- List of names of members of committees, 1913. Elec Ry J 41:595 Mr 29 '13

Central-Georgia transmission company

- High-tension transmission system in central Georgia. II Elec W 61:189-91 Ja 25 '13

Central Illinois public service company

- Great rural network. Elec W 61:1123 My 31 '13
- Unified public utilities in central Illinois. II map Elec W 61:1146-56 My 31 '13

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- History of Central railway club. Ry & Eng R 53:465 My 17 '13

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- Annual meeting, Chicago, Oct. 22, 1913. Dom Eng 65:116-7 O 25 '13

Central union telephone company

- Interest of minority stockholders in public utilities to be established. Elec W 61:924 My 3 '13

Centrifugal machines

- Centrifugal separation. L. Griscom. II Met & Chem Eng 11:223-4 Ap '13
- Design, construction and uses of centrifugals. H. H. Stephens. II Met & Chem Eng 11:358-9 Je '13
- Mauss centrifugal-filtering machine. II Eng & Min J 96:547-8 S 20 '13
- Oil extracting and washing centrifugal. II plan Met & Chem Eng 11:295 My '13
- Self-balancing centrifugal. II Met & Chem Eng 11:297 My '13

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- Use of cesspools and their dangers. F. W. Tower. Dom Eng 65:231-2 N 22 '13

Chagres river

- Taming the Chagres river. Sci Am 109:222 S 20 '13

Chains

- Annealing of hoisting chains. Iron Age 91:946-7 Ap 17 '13

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- Description of chalcocite. L. C. Graton. Am Inst Min E Bul 77:767-74 My '13
- Origin of chalcocite. A. P. MacCallum. Eng & Min J 96:393-4 N 8 '13
- Origin of the Butte chalcocite. Eng & Min J 96:433-40 S 6 '13

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- Address of president of National chamber of commerce, before the National pipe and supplies association. H. Wheeler. Dom Eng 63:18-91, 215-7 My 17-24 '13
- Address of its president, Mr. Harry Wheeler, before the Central supply association, at Chicago. Dom Eng 62:19-4 Ja 4 '13

Channels

- Channel- and beach-maintenance problem at Atlantic City. R. R. Raymond. map Eng N 70:150-4 J1 24 '13
- Factors in channel design. Eng Rec 67:242-3 Mr 1 '13
- New route for downbound vessels to facilitate Great lakes shipping. II Iron Tr R 52:30-4 Ja 2 '13
- Problems in removing sand from Columbia river bar. Eng Rec 68:731 D 27 '13
- St. Lawrence ship channel improvements. II. C. Plummer. II Sci Am 109:182-3 S 6 '13
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- Chapel on a motor truck. II Sci Am 108:352 Ap 19 '13
- Concrete features of Greenwood mortuary chapel, Brooklyn, N. Y. II plan Eng Rec 67:362 Mr 29 '13
- Revival of French Gothic architecture: a mausoleum after St. Hubert's chapel. L. R. McCabe. II Arch Rec 34:202-12 S '13

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- Scientific employment of men: standardizing human character. H. Newton. II Sci Am 109:68-9 J1 26 '13
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- Nine million dollar hydroelectric plant for Chattanooga. II Sci Am S 75:388 D 20 '13

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- Proposed plumbing inspection ordinance for Chattanooga. Dom Eng 63:230-40 My 24 '13

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- From the chauffeur's point of view. Sci Am 109:76 J1 26 '13

Cheese

Bacteriology of Cheddar cheese. E. G. Hastings and others. *il Sci Am S* 75:357-8 *Je* 7 '13

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Keeping acidimetric solutions constant. *il Eng & Min J* 55:376 *F* 15 '13

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Power plant chemical laboratory practice. *Power* 37:168-9 *F* 4 '13

Waste pipes for chemical laboratories. *Dom Eng* 65:377-8 *D* 20 '13

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Electricity and chemical action. H. C. Jones. *Sci Am S* 75:174-6 *Mr* 15 '13

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Russian heavy chemicals. *Met & Chem Eng* 11:631-2 *N* '13

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Chemistry, Organic

Chemical constitution of resinous phenolic condensation products. L. H. Baekeland. *Met & Chem Eng* 11:312-4 *Je* '13

Spectroscope in organic chemistry. J. J. Dobbie. *il Sci Am S* 76:6-7 *Jl* 5 '13

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Chemistry, Technical

Absorption and reaction towers for chemical factories. *diags Met & Chem Eng* 11:359-61 *Je* '13

Chemical production of light: cold light. W. D. Bancroft. *J Fr Inst* 175:129-49 *F* '13; Same. *Sci Am S* 76:254-6 *O* 18 '13

Conservation and research: economies secured by scientific investigation. H. T. Kahnus. *Sci Am S* 75:114-5 *F* 22 '13

Earning power of chemistry in the coal mining industry. E. M. Chance. *Colliery* 33: 693-4 *Jl* '13

Efficiency in chemical industries. T. B. Wagner. *Met & Chem Eng* 11:443-6 *Ag* '13

Industrial combustible gases. J. M. Rusby. *il J Fr Inst* 176:1-41 *Jl* '13

Industrial fellowships: five years of an educational industrial experiment. R. K. Duncan. *J Fr Inst* 175:43-57 *Ja* '13

Industrial research in America. A. D. Little. *Sci Am S* 76:282, 303 *N* 1-8 '13

Manufacture of chemically pure acids, problems encountered. J. T. Baker. *il Sci Am S* 75:94-6 *F* 8 '13

Manufacturing problems. F. D. Bell. *il Sci Am* 108:577-8 *Je* 28 '13

Optical activity of petroleum and its significance; new light on the nature and origin of mineral oil. F. W. Bushong. *Sci Am S* 76:86-7 *Ag* 9 '13

Our universities and industrial research. A. D. Little. *Sci Am S* 76:311 *N* 15 '13

Peroxides and per-salts. A. S. Neumark. *il Sci Am S* 75:182-3, 200-1, 221-3 *Mr* 22-*Ap* 5 '13

Photo-chemistry of the future. G. Ciamician. *Sci Am S* 75:258-9 *Ap* 26 '13

Protection of intellectual property in relation to chemical industry. L. H. Baekeland. *Met & Chem Eng* 11:31-6 *Ja* '13

Quantitative spectrum analysis. G. A. Shook. *Met & Chem Eng* 11:494-7, 552-5, 633-7 *S-N* '13

Recent chemical and metallurgical patents. *il Met & Chem Eng* 11:53-6 *Ja* '13

Relation of the chemist to the electric railway. Elec Ry J 42:1142-3 *N* 29 '13

Staling of bread explained in the light of physical chemistry. R. Lorenz. *il Sci Am S* 76:268-9 *O* 25 '13

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Chemotherapy

Treatment of bacteriological infections by chemical means. F. Blumenthal. *Sci Am S* 75:355 *Je* 7 '13

Chesapeake & Ohio railroad

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Studies in operation. *Ry Age* 55:1061-5 *D* 5 '13

35th annual report for year ended June 30, 1913. *Ry Age* 55:681-3 *O* 10 '13

Chestnut

Fighting the chestnut bark disease. *il Sci Am* 108:314 *Ap* 5 '13

Chestnut Hill, Pennsylvania

Architecture and the housing problem. C. M. Price. *il Arch Rec* 34:240-7 *S* '13

Chicago, Illinois

Bearing power of soil under foundations in Chicago. *Eng N* 69:463-5 *Mr* 6 '13

Electric service in Chicago. *il map Elec W* 61:1137-45 *My* 31 '13

Hardpan and other soil tests in Chicago; safe loads. J. N. Jensen. *il plan Eng N* 69:460-3 *Mr* 6 '13

Civil service commission

Work of the efficiency division. *Eng Rec* 67: 629-31 *Je* 7 '13

Finance

Classified salary and wage budget estimates of Chicago for 1913. *Eng N* 69:401 *F* 27 '13

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Lighting

Cost of municipal electric lighting at Chicago. R. Palmer. *Eng N* 70:668 *O* 2 '13

Plan for future street lighting of Chicago. *map Elec W* 61:785-6 *Ap* 12 '13

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Chicago—a city set in a garden. C. H. Wacker. *Munic Eng* 44:45-7 *Ja* '13

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Rating the efficiency of municipal employees. *Eng Rec* 67:665 *Je* 14 '13

Reorganization of the Department of electricity, Chicago. *Elec W* 62:222-3 *Ag* 2 '13

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Arnold report on Chicago railroad terminals. *Eng Rec* 68:597 *N* 29 '13

Chicago passenger terminals and the city beautiful plan. *Ry & Eng R* 53:169 *F* 22 '13

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- Chicago railway terminals. J. F. Wallace, Ry & Eng R 53:1001-3, 1911-6 O 25-N 1 '13; Same, Eng N 70:323-5 N 6 '13
- Chicago terminals and the smoke problem. Ry & Eng R 53:414 My 3 '13
- Chicago terminals and the smoke problem. R. E. Pierce, Ry & Eng R 53:440 My 10 '13
- Electrification of Chicago railway terminals. Ry & Eng R 53:459-61 My 17 '13
- Employees oppose Chicago electrification. Ry Age 55:823-4 O 31 '13
- Hearing on electrification in Chicago. Ry Age 54:1065-6 My 16 '13
- Municipal participation in railway-terminal projects at Chicago. Eng N 69:1236-7 Je 12 '13
- New Soo freight terminal at Chicago. A. R. Lord, il plan Ry Age 55:321-5 Ag 22 '13
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- One plan for solving the Chicago terminal problem. il Ry Age 55:320 Ag 22 '13
- Plans for new union station at Chicago. il Ry Age 54:1117-9 My 23 '13
- Proposed development of Chicago railway facilities. Ry Age 55:745-S O 21 '13
- Proposed plan of one central railway terminal for Chicago. R. C. Sattley, plan Ry & Eng R 53:666-71 Jl 12 '13
- Railway terminals in Chicago. plan Eng N 70:210-5 Jl 31 '13
- Railway terminals in large cities and the latest Chicago terminal project. Eng N 69:427-9 F 27 '13
- Relocating of Chicago railway terminals. plan Ry Age 54:1184-7 My 30 '13
- Report on Chicago terminals. B. J. Arnold, Ry & Eng R 53:1087-91 N 22 '13; Same cond. Eng N 70:1154-7 D 4 '13; Same cond. Ry Age 55:1078-81 D 5 '13
- Soo line freight terminal in Chicago. il plan Eng N 70:378-83 Ag 21 '13; Same cond. Eng Rec 68:188-91 Ag 16 '13
- Terminal electrification in Chicago. Elec W 61:1075-6 My 24 '13
- Wallace report on Chicago railroad terminals. Eng Rec 68:486-7 N 1 '13
- Rapid transit**
- Central-station energy for Chicago railways: terms of contracts between the Commonwealth Edison company and the surface and elevated lines of Chicago. Elec W 62:1116-1 N 2 '13
- Chicago City railway's new cars. diags Elec Ry J 12:1281-2 D 26 '13
- Chicago surface railway officials advocate proposed traction merger. Elec Ry J 41:157-8 Ja 25 '13
- Chicago surface railways outline proposed plan of merger. Elec Ry J 42:698-700 O 11 '13
- Electrolysis clauses of Chicago street car ordinance. Eng Rec 68:642 D 6 '13
- Estimates based on proposed merger of Chicago surface lines. Elec Ry J 41:1032 Je 7 '13
- 4th annual report of Board of supervising engineers, Chicago traction, for year ended Jan. 31, 1911. Elec Ry J 41:899-11 My 3 '13
- Negotiations for consolidation in Chicago. Elec Ry J 41:354 Mr 1 '13
- New railway power contracts in Chicago. Elec Ry J 42:1138-9 N 29 '13
- Preliminary draft of Chicago general merger ordinance being prepared. Elec Ry J 41:338-9 F 22 '13
- Progress with unification ordinance in Chicago. Elec Ry J 42:390-1 N 1 '13
- Proposed changes in Chicago ordinance. Elec Ry J 42:189-90 Ag 2 '13
- Proposed subway for Chicago. W. J. Shanks, diags Eng N 70:1044 N 20 '13; Same, Ry & Eng R 53:1081-2 N 22 '13
- Proposed subway system for Chicago. plan Eng M 44:251-4 N '12
- Recent derailments on the Chicago elevated loop. Eng N 69:381-2 F 20 '13

- Report of Board of supervising engineers, Chicago traction on Chicago rolling stock for year ended Jan. 31, 1911. Elec Ry J 41:893-6 My 17 '13
- Service equipment and operation in Chicago. Elec Ry J 42:265-8 Ag 16 '13
- Substance of Chicago's surface railway unification ordinance. Elec Ry J 42:1112 N 22 '13
- Subways for Chicago. Munic Eng 45:542-3 D '13
- Unification plans for Chicago surface lines. Elec Ry J 11:347-8 My 24 '13
- Value of Chicago elevated railways discussed in merger proceedings. Elec Ry J 41:168-9 Ja 25 '13

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- Clay-hole dumps for Chicago's garbage. Eng Rec 68:422 O 18 '13
- Construction of tile pipe sewers in Chicago. H. E. Hudson, il Munic Eng 45:20-4 Jl '13
- Estimating the cost of garbage and refuse collection and haulage in Chicago. Eng N 69:106-7 Ja 16 '13
- Failure in appraisals of Chicago Reduction co.'s plant. Eng Rec 68:151 O 25 '13
- Garbage-plant appraisal in Chicago: abstract of opinions of the appraisers. Eng Rec 68:165-6 O 25 '13
- Garbage reduction in Chicago. il plan Munic Eng 44:137-9 F '13
- Plumbing and heating in Chicago. Dem Eng 65:415-6 D 27 '13
- Refuse disposal methods as adapted to Chicago: incineration recommended. Munic Eng 45:528-32 D '13
- Street cleaning and garbage collection efficiency studies of the Chicago civil service commission. Eng N 69:123 Ja 16 '13
- Street cleaning and garbage collection methods in Chicago. Eng Rec 67:24-6 Ja 4 '13
- See also Chicago drainage canal

Streets

- Care of streets in Chicago: abstract of a report on cleaning and repairing streets. Eng Rec 68:558-9 N 15 '13
- Cave-in of Randolph street. il Eng Rec 68:677-8, 715-6 D 13, 27 '13
- Crescoted block paving in Chicago. J. E. Ericson, il plan Munic Eng 44:17-20 Ja '13
- Park drives and boulevards in Chicago. L. White, il Munic Eng 44:89-95 F '13
- Paving in Chicago. F. W. Solen, Munic Eng 44:542 Ja '13
- Street cleaning efficiency standards for Chicago. F. H. Centfield and A. B. Segur, map Eng N 69:462-4 F 27 '13
- Chicago & Northwestern railroad**
- Annual report for year ended June 30, 1913. Ry Age 55:590-4 S 26 '13
- Revenue and expenses. map Ry Age 55:552-4 S 26 '13
- Safety on the Chicago & Northwestern: organization for this work and illustrations of shop safeguards. W. T. Gale, il plans Am Eng 87:137-41 Mr '13
- Chicago architectural club**
- Notes on the 26th annual exhibition, 1913. R. A. Lippincott, il Arch Rec 33:567-73 Je '13
- Chicago, Burlington & Quincy railroad**
- Burlington adopts new train audit system. Ry Age 54:112-3 Ja 17 '13
- Burlington's construction organization. Ry Age 55:111-2 Jl 18 '13
- 59th annual report, for year ended June 30, 1913. Ry Age 55:893-6 N 7 '13
- Revenues and expenses. Ry Age 55:854-5 N 7 '13
- Studies of operation. Ry Age 55:85-7 Jl 18 '13
- Chicago cement show**
- Chicago's sixth cement show, Jan., 1913. Concrete Cem 2:87 F '13
- Chicago central station institute**
- School to teach the selling of electricity. Elec W 61:331 F 15 '13
- Chicago drainage canal**
- Electrically operated excavators on Calumet-Sag channel of Chicago drainage canal. il Elec W 61:409 F 22 '13

- Chicago drainage canal**—*Continued*.
Far reaching decision respecting the use of the Chicago drainage canal. Eng N 69:125 Ja 16 '13
Limiting the use of the Chicago drainage canal. Eng N 69:129-31 Ja 16 '13
Setback for the Chicago drainage canal. Eng Rec 67:58-9 Ja 18 '13
- Chicago Great Western railway**
Maintenance of way improvements. Ry & Eng R 53:148 F 15 '13
- Chicago, Indianapolis & Louisville railway**
Automatic block signals for single track. il Eng N 69:58-60 Ja 9 '13
- Chicago, Milwaukee & Puget Sound railroad**
Electrification of 450 miles of mountain division. Elec R & W Elec'n 62:109 Ja 11 '13
Electrification plan. Elec Ry J 41:70 Ja 11 '13
Power contract for a trunk-line electrification between the Great Falls power company and the Chicago, Milwaukee & Puget Sound railway. Elec Ry J 41:280-1 F 15 '13
Purchased power for electrification. Elec Ry J 41:290 F 15 '13
- Chicago, Milwaukee & St. Paul railroad**
Improvement work on the C. M. & St. P.; second track and grade revision between Aberdeen, S. D., and Montevideo, Minn. il diags map Ry Age 54:673-6 Mr 21 '13
- Chicago railways company**
Annual reports for years ended Jan 31, 1913 and 1912. Elec Ry J 41:775 Ap 26 '13
- Chicago, Rock Island & Pacific railroad**
Revenues and expenses. map Ry Age 55:691-2 O 17 '13
33d annual report for year ended June 30, 1913. Ry Age 55:733-6 O 17 '13
- Chicago, Saint Paul, Minneapolis & Omaha railway**
Annual report for year ended June 30, 1913. Ry Age 55:594-6 S 26 '13
- Chicago, World's Columbian exposition, 1893**
Lessons of the Chicago world's fair. D. H. Burnham. il Arch Rec 33:34-44 Ja '13
- Chief interchange car inspectors' and car foremen's association**
14th annual convention, Minneapolis, Minn., Aug., 1913. Ry Age (Mech ed) 87:495-6 S '13
- Child study**
Pedagogical laboratories; how children are studied in a Russian laboratory. P. R. Radosavljevich. il Sci Am 109:161-2 Ag 30 '13
Teaching from the child's point of view: a new science created by Prof. Ernest Meumann. P. R. Radosavljevich. il Sci Am 109:141 Ag 23 '13
- Chile**
Industries and resources
Extent of the Chilean iron ore deposits. map Iron Tr R 52:459-62 F 20 '13
Iron ore resources of Chile. C. Vattier. Eng & Min J 95:234-6 Ja 25 '13
- Chile saltpeter.** See Sodium nitrate
- Chilled iron**
Cast iron for machine tool parts. H. M. Wood. il Am Soc M E J 35:1631-44 N '13
Same cond. Iron Age 92:1312-4 D 4 '13
Same cond. Foundry 41:523-6 D '13
Chilled cast iron used for machine tools. H. M. Wood. il Am Mach 38:146-8 Ja 23 '13
Use of chills. W. J. Keep. Foundry 41:182 My '13
- Chilled iron car wheels.** See Car wheels
- Chimneys**
Calculating weight of stacks. Eng & Min J 96:1018 N 29 '13
Calculation of chimney losses. Ind Eng 13:452 O '13
Chimney design. diag Power 38:277-9 Ag 19 '13
Chimneys with new charts, for use in connection with house heating and power plants. W. J. Baldwin. diags Heat & Ven 10:23-30 O '13
Dimensions of boiler chimneys for crude oil: discussion of paper by C. R. Weymouth. Am Soc M E J 35:663-6 Ap '13
Draft and its measurement. Power 38:244-6 Ag 12 '13
Erecting a steel smokestack on a high roof. Eng Rec 67:584-5 My 24 '13
400-ft. steel chimney of the United Verde copper co., at Jerome, Ariz. C. W. Cromwell. diag Eng N 70:1114-6 D 4 '13; Same. Eng & Min J 96:1058-60 D 6 '13
Great Falls flue system and chimney. C. W. Goodale and J. H. Klepinger. il diags Am Inst Min E Bul 80:1935-2010 Ag '13
Plant chimneys for burning crude oil. Elec W 61:255-6 F 1 '13
Slag foundation for a 305-ft. steel chimney. C. W. Cromwell. plans Eng N 70:1167-8 D 11 '13
Solution of chimney problem. (Engineers' study course) Power 38:312-4 Ag 26 '13
See also Flues; Heating; Ventilation
- Chimneys, Concrete**
Chimney at J. T. Wilcox & son's plant, Council Bluffs, Ia. withstood severe wind strain. R. F. Wilcox. il Munic Eng 45:181-2 Ag '13
Chimney construction in monolithic cottages. il Concrete Cem 3:178-9 O '13
Concrete chimney construction. il Eng M 44:956-8 Mr '13
Concrete chimney on the Pacific coast. il Concrete Cem 2:234-5 My '13
Construction of gravity concrete chimneys. R. S. Draper. plan Concrete Cem 2:149 Mr '13
Molds for segmental chimney construction. il plan Concrete Cem 3:210-2 N '13
Reinforced concrete chimney for the municipal water plant, Clarksville, Tenn. il Munic Eng 44:567-8 Je '13
Repairs to a reinforced-concrete chimney, Kansas City, Mo. Power 37:764 My 27 '13
Repairs to a reinforced-concrete chimney at Kansas City, Mo. C. E. Smith. plans Eng N 69:962-3 My 8 '13
Replacing a steel stack with one of concrete and brick. il Eng & Min J 96:978-9 N 22 '13
Segmental chimney construction in France. plans Concrete Cem 2:32-5 Ja '13
- China**
Chinese famine and proposed flood prevention. C. D. Jameson. il map Eng N 70:588-93 S 25 '13
- Bridges**
Large cantilever bridge in China. il Eng N 69:61 Ja 9 '13
- Navy**
Chinese training cruiser Ying Swei. F. C. Coleman. il Int Marine Eng 18:231-2 Je '13
- Chino copper company**
Report for 1912. map Eng & Min J 95:916-8 My 3 '13
- Chloride of lime**
Use of chloride of lime with pressure filters. F. D. West. il Eng Rec 67:65-6 Ja 18 '13
- Chlorinating plants.** See Water purification
- Chlorination.** See Ore treatment
- Chlorine**
Chlorine gas for water sterilization at Wilmington, Del. J. A. Kienle. il Eng Rec 67:417 Ap 12 '13
Production of caustic alkali and bleach. D. J. Allmand. il Sci Am S 76:22-3 Ji 12 '13
- Chlorophyll**
Role of colors in nature. E. K. Hanson. Sci Am S 76:367 D 6 '13
- Cholera, Asiatic**
Cholera granary. Sci Am 108:446 My 17 '13
- Cholesterol**
Biochemical studies of cholesterol. J. S. Hepburn. bibliog J Fr Inst 176:405-52 O '13
- Chromium**
Determination of chromium in steel. F. Garrett. Iron Age 91:890-1 Ap 10 '13

Chronometers

Automatic astronomical calculator; Butterfield azimuth chronometer. A. H. Brown. *il Sci Am S 76:44-5 JI 19 '13*

Chucking machines

New Britain automatic multiple spindle chucking machine. *il Mach 19:65-6 S '12*

Chucks

Holding devices for first-operation work. A. A. Dowd. *diags Mach 20:199-203 N '13*
 Making the Horton-Morrow chuck. C. L. Lucas. *il Mach 19:795-9 Je '13*
 New combination offset boring head and drill chuck. *il Ind Eng 13:221-2 My '13*
 Pneumatic chuck for staybolt drilling. J. C. Brekenfeld. *il diag Am Eng 87:247 My '13*
 Schorlemmer drill chuck. *diag Eng & Min J 95:608 Mr 22 '13*

Church architecture

Design of certain modern church edifices. E. Grey. *il plan Arch Rec 34:544-56 D '13*
 Spanish church in New York city, Our Lady of Hope. L. R. McCabe. *il Arch Rec 33:14-21 Ja '13*
 Steel framework of St. Jean Baptiste church, N. Y. *il plans Eng Rec 68:433-6 O 18 '13*
See also Cathedrals; Chapels

Church decoration

Study in church decoration: the Paulist fathers church in New York city. C. H. Dorr. *il Arch Rec 33:187-203 Mr '13*

Church lighting

Church lighting. *Elec W 62:752-3 O 11 '13*

Churches

Heating and ventilating a church building: new St. Patrick's church, of Philadelphia. J. Graham. *plans Dom Eng 65:298-302 D 6 '13*

See also Church architecture

Churches, Concrete

German evangelical Lutheran church, Sacramento, Cal. built of white concrete block. *il Concrete Cem 1:61 D '12*

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Motor equipment of a cigar-box factory. *il Elec W 61:352 My 3 '13*

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See also Smoking

Cincinnati, Ohio

Topographic survey of Cincinnati. H. C. Mitchell. *il plan Eng N 69:652-6 Ap 3 '13*

Bridges

Gilbert avenue viaduct in Cincinnati. *il plan Eng Rec 67:246-8 Mr 1 '13*

Parks

Cincinnati's playgrounds. *il Munic Eng 44:8-14 Ja '13*

Politics and government

Cincinnati's purchasing system. *Munic Eng 45:217-23 S '13*

Rapid transit

Cincinnati traction strike. *il Elec Ry J 41:890-2 My 17 '13*

Report on Cincinnati terminal possibilities. *map Elec Ry J 41:339-4 F 22 '13*

Terms of proposed agreement between Cincinnati traction company and the city. *Elec Ry J 41:648-9 Ap 5 '13*

Sanitary affairs

Cincinnati sewerage investigations and surveys. J. E. Root. *Eng Rec 67:347-8 Mr 29 '13*

Instructions for subsurface survey. *Eng N 70:1080-3 N 27 '13*

Cincinnati, Chicago & St. Louis railway

24th annual report, 1912. *Ry Age 54:697-8 Mr 21 '13*

Cincinnati mine disaster

Account of the accident; method of mining; rescue work. W. Z. Price. *map Colliery 33:636-43 Je '13*

Cincinnati traction company

Terms of proposed agreement between Cincinnati traction company and the city. *Elec Ry J 41:648-9 Ap 5 '13*

Cinders

Apparatus for catching cinders in gases. *il Iron Age 92:547-9 S 11 '13*; Same. *Sci Am S 76:316-7 N 15 '13*

Cinder foundation in sidewalk construction. *Concrete Cem 3:173-5, 224 O-N '13*

Investigation of the strength of cinder concrete. G. E. Strehan and H. Perrine. *il Eng N 70:722-4 O 9 '13*

Cinematographs

Cinematograph hand camera. *il Sci Am 109:346 N 1 '13*

Cinematography carried to extremes in the Marey institute. *il Sci Am S 75:389 Je 21 '13*

Non-inflammable cinematograph films. *Sci Am S 75:83 F 8 '13*

One hundred thousand photographs per second: high-frequency electric sparks used as a source of intermittent light. *il Sci Am S 75:69 F 1 '13*

To the south pole with the cinematograph. *il Sci Am 108:560-1 Je 21 '13*

Cinnabar ores. *See* Mercury

Circassian walnut. *See* Walnut

Circle

Circle. (Engineers' study course) Power 37: 313-5 Mr 4 '13

Circuit-breakers. *See* Electric circuit breakers

Circulation of the blood. *See* Blood

Circus

Lighting the modern circus. *il Elec W 62:250 Ag 2 '13*

Cities and towns

Where will city growth stop? *Eng N 69:426 F 27 '13*

See also City planning; Housing problem; Municipal government and other headings beginning Municipal; Parks; Sewage disposal; Street cleaning; Water purification; Water supply

City halls. *See* Public buildings

City lighting. *See* Street lighting

City manager. *See* Municipal government

City planning

City planning and the engineer. *Eng Rec 68:622-3 D 6 '13*

City scientific. G. B. Ford. *Eng Rec 67:551-2 My 17 '13*

Delhi, the metropolis of India: how shall the new Indian capital be built? B. Leslie. *il Sci Am S 75:72-4 F 1 '13*

Engineering interest in city planning. *Eng Rec 67:651 Je 14 '13*

Extract from report of committee on town planning, as read before the Am. Inst. of architects, Dec., 1912. *Eng N 69:400-1 F 27 '13*

Fifth national conference on city planning, Chicago, May, 1913. *Elec W 61:1022 My 17 '13*; *Eng N 69:1024 My 15 '13*

Industrial city of Torrance, Cal. R. Bennett. *il map plans Eng N 70:870-3 O 30 '13*

Municipal control of city planning in England. *Eng Rec 68:175-6 Ag 16 '13*

Organization and functions of a city planning commission. W. A. Magee. *Eng N 69:976-7 My 8 '13*; *Eng Rec 67:552 My 17 '13*

St. Louis plans a central traffic parkway. *plan Munic Eng 45:77-80 JI '13*

Transportation and city planning. M. R. Maltbie. *Elec Ry J 41:1106-7 Je 21 '13*; Same cond. *Eng Rec 68:65-6 JI 19 '13*

Transportation facilities and city planning. M. R. Maltbie. *Eng N 69:1025-6 My 15 '13*

What Cedar Rapids has done in five years under commission plan of government. L. Roth. *il Munic Eng 44:448-50 My '13*

See also Housing problem

Civic centers. *See* Municipal centers

Civil engineering

Civil service examination in Massachusetts. *Eng Rec 67:196 F 15 '13*

Civil engineering—Continued.

- Illinois soc. of engineers and surveyors; report of 28th annual meeting, 1913. Eng Rec 67:sup 39-40 F 1 '13
- Lighting, water-supply, sewerage, paving and transportation features of the Panama-Pacific exposition. A. H. Markwart. il plans Eng N 70:1070-6 N 27 '13
- Rainy day theory of office-work. Eng N 69:368 F 20 '13
- Retrospect of the year 1912. Sci Am 108:2 Ja 4 '13
- U. S. civil service examination questions for junior engineer. Eng Rec 67:480 Ap 26 '13
- See also Aqueducts; Arches; Blasting; Boring; Bridges; Building; Canals; Cofferdams; Docks; Drainage; Dredging; Earthwork; Excavation; Foundations; Harbors; Hydraulic engineering; Irrigation; Lighthouses; Mining engineering; Piles and pile driving; Public works; Railroad engineering; Railroads—Construction; Reclamation of land; Rivers; Roads; Sanitary engineering; Steel construction; Subways; Surveying; Tunnels and tunneling; Water supply engineering
- Civil service**
- Civil service requirements for positions in railway valuation. Ry & Eng R 53:588-90 Je 21 '13
- Merit system in road management. J. T. Doyle. Eng Rec 68:380 O 4 '13
- Suggested salary schedule for New York city engineering employees. Eng N 69:110-1 Ja 16 '13

Examinations

- Civil service examination for civil engineers in Massachusetts. Eng Rec 67:196 F 15 '13
- Civil service examination questions for New York state engineering positions. Eng N 70:1129-32 D 4 '13
- U. S. civil service examination questions for junior (civil) engineer. Eng Rec 67:480 Ap 26 '13

Civilization

- Is our civilisation dying? S. J. M. Low. Sci Am S 75:370-1 Je 14 '13

Claim agents

- 5th annual convention. Pacific claim agents' assn., Vancouver, July, 1913. Elec Ry J 42:136-40 Ji 26 '13
- Papers read at 5th annual meeting of Pacific claim agents' assn., Vancouver, July, 1913. Elec Ry J 42:103-7 Ji 19 '13
- Successful claim agent. W. H. Hyland. Elec Ry J 41:420-1 Mr 8 '13

Claims

- Claims and their adjustment. G. P. Early. Iron Age 91:1402-3 Je 5 '13

Clamps

- Standard clamps and bolts for machining. H. C. Spillman and H. Cadwallader, Jr. il diag Iron Age 92:1017-9 N 6 '13

Clarinda, Iowa

- City-manager plan. Eng N 70:801 O 23 '13

Clarksburg, West Virginia**Water supply**

- Mechanical filtration plant at Clarksburg. H. W. Streeter. il Eng Rec 68:7-9 Ji 5 '13

Classical education

- Classics in engineering education. C. P. Steinmetz. Eng M 46:97-9 O '13
- Value of the classics in modern education as viewed by an engineer. C. P. Steinmetz. Eng Rec 68:158-9 Ag 9 '13

Classification

- Interstate commerce commission account numbers for correspondence filing. W. S. Wollner. Ry Age 55:1117 D 12 '13

See also Files and filing (documents)

Classification, Decimal

- Dewey decimal system of classification extended to engineering. Eng N 69:537-8 Mr 13 '13

- Classification of freight. See Freight classification

Classifiers

- Anaconda classifier. R. Ammon. il Am Inst Min E Bul 80:2151-97 Ag '13
- Application of hindered settling to hydraulic classifiers. E. S. Bardwell. Am Inst Min E Bul 80:1469-79 Ag '13
- Argall classifier. diag Eng & Min J 95:21 Ja 4 '13
- Automatic indicator for drag classifiers. D. F. Irvin. diag Eng & Min J 95:663-4 Mr 29 '13
- Michel hydraulic classifier. il Eng & Min J 96:633-4 O 11 '13
- Ore-dressing improvements. R. H. Richards. Am Inst Min E Bul 81:2299-2303 S '13

Claude process

- Claude process for reproducing drawings. il Sci Am S 75:104 F 15 '13

Clay

- Effect of preliminary heat treatment upon the drying of clays. Sci Am S 75:11 Ja 4 '13

See also Fire clay; Fuller's earth; Kaolin; Pottery

Cleaning

- See also Boiler cleaning; Car cleaning; Gas cleaning; Sewer cleaning; Street cleaning; Vacuum cleaning

- Clearing house, Railroad. See Railroad clearing house

Cleveland, Ohio

- Cleveland municipal electric plants. A. D. Williams. il map Power 38:740-2 N 25 '13

Architecture

- Leader-News building. il Arch Rec 33:501-17 Je '13

Chamber of commerce

- Cleveland chamber of commerce and the Old-field bill. Sci Am 108:343 Ap 12 '13

Flood, 1913

- Flood damage at Cleveland. R. Hoffmann. il Eng Rec 67: 449 Ap 19 '13

Politics and government

- Cleveland's new charter. Eng Rec 68:31 Ji 12 '13

- Municipal recognition of the certified public accountant. C. H. Nau. J Account 16:99-109 Ag '13

- Proposed new Cleveland charter and the engineering organization of cities. Eng N 69:583-4 Mr 20 '13

Railroads

- Elimination of grade crossings in Cleveland by the New York, Chicago & St. Louis railroad. il map Ry & Eng R 53:1100-4, 1144-7, 1178-81 N 29, D 13-20 '13

Rapid transit

- Arbitrated result in Cleveland. Elec Ry J 41:1131-5 Je 28 '13

- Arbitration of operating expense charges in Cleveland. Elec Ry J 41:925-9, 971-3, 1070-6 My 24-31, Je 14 '13

- Cleveland franchise is not a solution. Elec Ry J 42:918-9 O 25 '13

- Decision in the Cleveland case. Elec Ry J 41:1112 Je 21 '13

- Decision of Board of arbitration in the Cleveland case: text. Elec Ry J 41:1159-62 Je 28 '13

- Economics of the Cleveland railway situation as developed in the 1913 arbitration decision. C. N. Duffy. Elec Ry J 42:770-3 O 15 '13

- Electric power in Cleveland. il map plans Elec Ry J 41:618-23 Ap 5 '13

- Issues in Cleveland. Elec Ry J 41:957 My 31 '13

- Track construction in Cleveland, Ohio during 1912. plan Elec Ry J 41:104 Ja 18 '13

Sanitary affairs

- Cleveland fly campaign. J. Dawson. Sci Am S 75:102-3 F 15 '13

- Sewage disposal investigations at Cleveland. R. W. Pratt. il plans Eng N 69:287-94 F 13 '13

Cleveland, Cincinnati, Chicago & St. Louis railroad
Annual report for 1912. Ry Age 54:660-1 Mr 21 '13

Cleveland engineering society
Publicity work. C. E. Drayer. Eng N 69: 1137 My 29 '13

Climate
Volcanic dust and climatic changes. Eng & Min J 96:453-4 S 6 '13

Volcanic dust as a factor in the production of climatic changes. W. J. Humphreys. Sci Am S 76:114 Ag 23 '13

Clocks
Clock that speaks the time of day. W. R. I. il Sci Am 109:35 Jl 12 '13
Phonographic alarm clock. W. Isendahl. Sci Am 108:456-7 My 17 '13

See also Time clocks; Watch making; Watches

Cloth. See Textile industry and fabrics

Clutch release shoes. Design of. J. S. Myers. Mach 19:723-4 My '13

Clutch release shoes. Design of. M. Terry. plans Mach 19:332-4 Ja '13

Clutches
Characteristics of friction clutches. J. W. Brassington. Mach 19:941-2 Ag '13
Fixtures used in making Edgemont friction clutches. D. T. Hamilton. il Mach 19:358-9 Ja '13

Clutches (automobile). See Automobiles—Clutches

Coal

Analyses of coals in the United States: description of samples. N. W. Lord and others. U S Bur Mines Bul 22:323-1166 '13

Coal at Panama-Pacific exposition. Colliery 34:313-4 D '13

Coal mining adjuncts of railroads. J. D. A. Morrow. Ry Age 55:656 O 19 '13

Coal statistics. 1912: Pennsylvania, Montana, Iowa. Colliery 33:512-3 Ap '13

Conservation of coal and liquid fuel. Power 38:564-6 O 21 '13

Economy in purchasing and using coal. A. O. Doane. Eng M 45:398-404 Je '13

Electricity direct from coal: problem of the galvanic cell with carbon consumption. E. Baur. Sci Am S 75:346-8 My 31 '13

5th annual convention of International railway fuel assn., Chicago, 1913. Ry Age 54: 1178-83 My 30 '13

5th annual convention of the International railway fuel assn., Chicago, 1913. Ry & Eng R 53:485-7, 567-8 My 24-31 '13

Fuel economy on a trunk line railroad. W. B. Landon. Ry & Eng R 53:54-7 Ja 18 '13

Fuel production in the United States: present consumption and future supply. R. H. Byrd. il Sci Am 109:10 Jl 5 '13

Kilowatt hours per ton of coal at various evaporators. C. H. Sammons. Power 38: 194 Ag 5 '13

Oil vs. coal for fuel. Power 37:396-7 Mr 18 '13

Origin of coal. W. G. Burroughs. Colliery 34:271-4 D '13

Papers and discussions at 5th annual convention of International railway fuel assn., Chicago, 1913. Ry Age (Mech ed) 87:289-96 Je '13

Photo-chemistry of the future. G. Ciamician. Sci Am S 75:258-9 Ap 26 '13

Power from waste fuel. Sci Am S 75:267 Ap 26 '13

Purchasing coal by heat units. F. P. Welker. plan Munic Eng 45:288 S '13

Purchasing coal under specifications. G. S. Pope. Power 38:623-5 O 28 '13

Rational utilization of coal. F. E. Junge. Power 37:445-7 Ap 1 '13

Spontaneous heating of stored coal, its cause and prevention. Sci Am S 75:10-1 Ja 4 '13

Spontaneous ignition of coal. T. A. Peebles. Power 38:486-7 S 30 '13

Study of the oxidation of coal and of the process of combustion. H. C. Porter. Met & Chem Eng 11:513 O '13

Sub-bituminous and lignitic coal as locomotive fuel. S. B. Flagg. diags Ry & Eng R 53:530-1 Je 7 '13; Same cond. Ry Age (Mech ed) 87:290-2 Je '13; Same cond. Ry Age 54:1178-80 My 30 '13

See also Briquets; Coal handling; Coal lands; Coal mines and mining; Coal preparation; Coal storage; Coal testing; Coal- ing stations; Coke; Fuel; Gas; Lignite

Analysis

Accuracy and limitations of coal analysis. Power 37:357-60 Mr 11 '13

Analyses of coals in the United States. N. W. Lord and others. U S Bur Mines Bul 22: 1-321 '13; Description of samples. il 22:323-1166 '13

Analysis and heat value of coal. Power 37: 827 Je 10 '13

Analysis of coal. (Engineers' study course) il Power 37:721-5, 758-61, 796-7 My 20-Je 3 '13

Analysis of government coal. Iron Tr R 52: 203 Ja 16 '13

Available CO₂ percentages. E. J. Billings; C. H. Southern. Power 37:721-2 My 20 '13

Available CO₂ percentages. A. Pohlman. Power 37:538 Ap 15 '13

Sampling coal deliveries. M. R. Smith. Elec Ry J 42:242-3 D 13 '13

Value of coal analyses. N. W. Lord. Colliery 34:242-3 N '13

Transportation

Motor barges in the Alabama coal trade. il plan Ry & Eng R 53:990-1 O 25 '13

See also Coal handling

Coal, Pulverized

Bettington dust-fuel boiler. H. V. Hart-Davis. il Eng M 44:936-8 Mr '13

Improved pulverized fuel feed device. il Iron Age 92:1024 N 6 '13

Powdered coal as fuel. W. S. Quigley. Ry Age 55:819-20 O 31 '13; Same. Ry & Eng R 53: 1967-8 N 15 '13

Powdered fuel and explosions. W. D. Wood. Ry Age 55:83-1 Jl 18 '13

Powdered fuel for locomotives. W. D. Wood. Ry Age 55:13-5 Jl 4 '13; Same. Eng M 45: 881-3 S '13

Problem of burning pulverized fuel. S. H. Bunnell. Iron Age 92:918 S 18 '13

Pulverized coal as a cheap fuel. Automobile 28:1177 Je 5 '13

Pulverized coal as a fuel. H. R. Barnhurst. plan Met & Chem Eng 11:127-9 Mr '13; Same. Sci Am S 75:314-5 My 17 '13; Same cond. Eng M 45:274-7 My '13

Pulverized coal as a fuel. A. W. Raymond. Met & Chem Eng 11:108-9 F '13

Pulverized coal as a fuel for metallurgical furnaces. H. R. Barnhurst. Am Inst Min E Bul 82:2523-32 O '13; Discussion. 84:2557-63 D '13

Pulverized coal for metallurgical furnaces. Met & Chem Eng 11:721 D '13

Pulverized coal in metallurgical furnaces. J. Lord. Iron Age 92:1442-3 D 25 '13

Pulverized coal in metallurgical furnaces: symposium. Iron Age 92:900-2 O 23 '13

Pulverized fuel for boiler firing. C. H. Wright. il plan Elec W 61:567-9 Mr 15 '13; Same cond. Ind Eng 13:236 My '13

Stoker vs. powdered fuel for locomotives. C. F. Street. Ry Age 55:136-7 Jl 25 '13

Wider utilization of pulverized coal. H. R. Barnhurst. Iron Age 92:906-8 O 23 '13

Coal cutters

Breast turret coal cutters. il Colliery 31:259-60 N '13

Jeffrey-Brennen adjustable turret coal cutter. C. E. Warborn. il Colliery 31:325-7 D '13

Coal dust

Causes of coal-dust explosions: composition and fineness of dust combined with volatile gases. C. M. Young. Eng M 41:771-3 F '13

Coal dust explosion tests in the experimental mine. G. S. Rice and others. il U S Bur Mines Bul 56:1-113 '13

How to handle a dry or dusty mine. D. Victor. Colliery 34:99-101 S '13

Coal dust *Continued.*

- Is anthracite dust explosive? Colliery 34:109-10 S '13
 Is coal dust explosive? Colliery 33:502-3 Ap '13
 Keeping down the dust. I. C. Parfitt. Colliery 34:256-7 N '13
 Laboratory study of the inflammability of coal dust. J. C. W. Frazer and others. U S Bur Mines Bul 50:1-58 '13
 Robbing coal dust of its dangers; experience in applying steam to air current. S. Reynolds. Mines & Min 33:307-9 Ja '13

Coal gas. See Coke-oven gas; Gas**Coal handling**

- Auto-truck for coal delivery. F. C. Perkins. il Sci Am S 75:24-5 Ja 11 '13
 Canadian Pacific unloading dock at Ft. William, Ont. il plan Ry Age 54:1173-6 My 30 '13
 Changing from oil fuel to coal. F. V. Hetzel. diags Power 38:803-4 D '13
 Coal and ash handling at Lake Shore plant, Cleveland. A. D. Williams. il Power 37:768-71 Je 3 '13
 Coal handling plant operated by the Illinois traction system at St. Louis. il Elec Ry J 42:1193 D 6 '13
 Coal-handling plants for Panama. Eng Rec 68:428 O 18 '13
 Coal unloading machines at Fort William, Ont. R. D. Williams. il plan Iron Tr R 53:577-80 O 2 '13
 Concrete coal pockets. il Mines & Min 33:304-5 Ja '13
 Conveyor installation at Pacific Mills, South Lawrence, Mass. il plan Iron Age 91:882-3 Ap 10 '13
 Electrically propelled inclined railway for unloading coal. il diag Elec W 62:597-8 S 20 '13
 Mechanical handling of coal for British locomotives. C. J. B. Cooke. plan Ry & Eng R 53:458-9 My 17 '13
 Motor-driven coal and ash-handling equipment at Pacific Mills, South Lawrence, Mass. il Elec W 62:1178-9 D 6 '13
 New Canadian Pacific coal handling plant. il plan Iron Age 91:192-5 Ja 16 '13
 New coal classification yards of the Philadelphia & Reading Ry. at St. Clair, Pa. J. S. Ward. il maps Eng N 70:540-8 S 18 '13
 New coal handling bridge at Duluth, Minn. il Ry Age 54:599-600 Mr 19 '13
 New coal handling plant at Fort William, Ont., Canadian Pacific Ry. il Ry & Eng R 53:115-6 F 8 '13
 Pacific Mills coal- and ash-handling equipment, South Lawrence, Mass. il Power 38:425-7 S 23 '13; Ind Eng 13:436-8 O '13
 Storing and rehandling anthracite under cover. W. E. Hamilton. plans Colliery 33:529-30 Ap '13
 Transfer of coal to and from ships. il Int Marine Eng 18:390-2 S '13

Coal lands

- Assessing and taxing coal in the ground. W. Griffith. Colliery 33:669-70 J1 '13
 Coal fields of Ohio. W. G. Burroughs. map Colliery 33:544-7 My '13
 Coal prospects in Matanuska field, Alaska. map Eng & Min J 96:1084 D 6 '13
 Development of Alaska coal lands. Colliery 33:534-5 My '13
 Michigan mining interests in Spitzbergen. Eng & Min J 96:1008 N 29 '13
 Taxing coal lands. Colliery 33:405 Mr '13
 Valuation of coal land. H. M. Chance. Am Inst Min E Bul 79:1315-41 J1 '13; Discussion. 33:2693-2701 N '13
 What is coal land? Colliery 34:224 N '13

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- Bath house proposition. J. E. Butler. plan Colliery 33:481 Ap '13
 Connell colliery hospital. il plan Colliery 34:201-6 N '13
 Examinations. Colliery 33:348 F '13
 Lunch house at Prospect colliery. il plan Colliery 33:482-3 Ap '13

Welfare work at coal mines. Colliery 33:469 Ap '13

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- Acadia coal company's steam-turbine plant; generating station for the mines at Stellarton, Nova Scotia, burning culm. il Elec W 61:145-8 Mr 1 '13
 Amortizing and interest charges. L. C. Jones. Colliery 33:415-8 Mr '13
 Answers to examination questions asked at examination for mine foreman and assistant foreman held at Pottsville, Pa., 1913. Colliery 33:651-4 Je '13
 Answers to examination questions for fire bosses and mine foremen West Virginia, 1912. Colliery 33:500-3, 587-90 Ap-May '13
 Blasting coal on to pans. plan Colliery 33:382 F '13
 Central station power for coal mines. C. W. Beers. Am Inst E E Pro 32:834-45 Ap '13; Discussion. 32:2206-13 D '13
 Central station power for mines; West Penn system. J. S. Jenks. Am Inst E E Pro 32:990-6 Ap '13; Discussion. 32:2234-43 D '13
 Characteristics of substation loads at anthracite collieries of the Lackawanna R. Co. H. M. Warren and A. S. Biesscker. Am Inst E E Pro 32:866-73 Ap '13; Discussion. 32:2234-43 D '13
 Coal mine ventilation. A. King. Colliery 33:423-6 Mr '13
 Coal mining machines. W. A. Miller. il Colliery 34:577-80 S '13
 Conservation and commercialism. F. S. Peabody. Colliery 33:694-6 J1 '13
 Cost of coal mining. E. W. Parker. Colliery 34:281-3 D '13
 Cost of mining as related to output. R. C. Jones. Colliery 34:158-61 O '13
 Earning power of chemistry in the coal mining industry. E. M. Chance. Colliery 33:693-4 J1 '13
 Effect of coal mining on the surface. Colliery 33:548-52, 617-22 My-Je '13
 Electrically equipped coal mines in Nova Scotia. C. H. Wright. il Elec W 61:239-41 F 1 '13
 Flushing anthracite workings. il Colliery 33:537-43 My '13
 Gas power for collieries. S. F. Walker. il diags Colliery 33:613-6 Je '13
 Ideal method of mining. J. C. Edwards and H. M. Gibb. diags Colliery 33:665-9 J1 '13
 Interference between oil and gas wells and coal mines. Eng N 69:450-3 Mr 6 '13
 Machine mining in anthracite mines. H. Archbald. il plan Colliery 33:471-6 Ap '13
 Madison coal corporation exhibition. il plan Colliery 34:275-81 D '13
 Mining plant of the Petros coal co.; the gravity plane and five-car rotary dump. A. W. Evans. diag Colliery 34:151-2 O '13
 Mining steel dipping coal: method suggested to meet certain conditions in thin seams in Arkansas. plan Mines & Min 33:301-3 Ja '13
 No. 2 mine of United coal mining co. C. M. Moderswell. Colliery 33:612 Je '13
 Open air coal mining; stripping methods employed in Pennsylvania. E. J. D. Cox. il Sci Am S 76:148-9 S 6 '13
 Pillars in mine working. Colliery 33:706-8 J1 '13
 Power transmission from the coal mine. Eng Rec 67:482 My 3 '13
 Pumping through coal. il Colliery 33:365 F '13
 Purchased power in coal mines. H. C. Eddy. Am Inst E E Pro 32:858-64 Ap '13; Discussion. 32:2206-13 D '13
 Quarrying coal at Tofield, Alberta. J. H. Sinclair. il Colliery 33:601-3 Je '13
 Scientific management. W. A. Weldin. Colliery 33:553-4 My '13
 Scientific management applied to coal mining. H. M. Payne. Colliery 33:701-2 J1 '13
 Short Mountain breaker. W. Z. Price. il plan Colliery 34:267-70 D '13
 Waste in coal mining. Colliery 33:441-2 Mr '13
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What the large anthracite companies have done. Colliery 34:132-3 O '13
Working an inclined coal bed. G. W. Evans. map diags Colliery 34:18-21 Ag '13

See also Coal dust; Coal lands; Coal miners; Coal washing; Mine accidents; Mine gases; Mining engineering

Accidents and explosions

Brookside mine disaster, Schuylkill co., Pa. W. Z. Price. il plan Colliery 34:101-3 S '13

Causes of coal-dust explosions: composition and fineness of dust combined with volatile gases. C. M. Young. Eng M 44:771-3 F '13

Coal dust explosion tests in the experimental mine. G. S. Rice and others. il U S Bur Mines Bul 56:1-113 '13

Coal mine accidents in the United States and foreign countries. F. W. Horton. U S Bur Mines Bul 69:1-56 '13

Coal mine fires. Colliery 33:690-2 JI '13
Combustion of oxygen and coal dust in mines. J. Ashworth. Colliery 33:709-10 JI '13

Discipline in mining. Colliery 33:585-6 My '13
Eldorado (Ill.) mine explosion, Feb. 19, 1913. Colliery 33:599 Ap '13

First aid in coal mining accidents; suggestions for formation of relief corps and for first aid instruction. C. Graham. Eng M 44:101-3 O '12

Imperial no. 3 mine explosion. Noble co., Ohio. W. E. Radcliff. map Colliery 33:685-6 JI '13

Influence of drafts in mine explosions. J. Verner. Colliery 33:576 My '13

Report of English explosions in mines committee. J. Ashworth. Colliery 34:92-3 S '13

Scott colliery disaster, Pa. plan Colliery 33:703-4 JI '13

Stopping ventilation at firing time. W. H. and S. Reynolds. Colliery 33:514-6 Ap '13

Stray electric currents. C. J. Norwood. Colliery 33:356-7 F '13

See also Coal dust; Coal mines and mining—Safety measures

Explosives

Blasting coal. T. C. Wakefield. Colliery 33:647-8 Je '13

Tests of permissible explosives. C. Hall and S. P. Howell. U S Bur Mines Bul 66:1-307 '13

Use of explosives in coal mines. F. H. Gunsolus. Colliery 33:459-60 Mr '13

Use of high explosives in northern mines. F. H. Gunsolus. Colliery 33:655 Je '13

Safety measures

Fire protection of mines. G. E. Lyman. Colliery 33:624-7 Je '13

How to handle a dry or dusty mine. D. Victor. Colliery 34:99-101 S '13

Madison coal corporation exhibition. il plan Colliery 34:275-81 D '13

Mine fires and their prevention. H. M. Wilson. il Sci Am S 75:404-5 Je 28 '13

New safety catch for hoists. il Colliery 33:461 Mr '13

Prevention of coal-dust explosions. diags Colliery 34:10 Ag '13

Production of stone dust in collieries. il Colliery 34:90 S '13

Relation of subsidence to packing. G. Knox. diags Colliery 34:87-90 S '13

Safe timbering. il Colliery 33:555-7 My '13

Safety first. T. Moses. Colliery 34:236-8 N '13

Stopping ventilation at firing time. W. H. and S. Reynolds. Colliery 33:514-6 Ap '13

Alabama

Alabama coal operators' association: 5th annual session, Marvel, Ala., 1913. W. Z. Price. il Colliery 34:69-73 S '13

Canada

Coal fields of western Canada. A. Lakes. map Colliery 34:11-4 Ag '13

Cape Breton Islands

Coal mines under the sea. Colliery 34:17 Ag '13

Illinois

Electric coal mining in central Illinois: O' Gara coal mine in Sangamon county. il Elec W 62:1211-2 D 13 '13

Longwall mining in Illinois. S. M. Dalzell. plan Colliery 33:606-9 Je '13

Kansas

Coal stripping in Kansas. B. Scobee. il Colliery 33:407-8 Mr '13

Strip-pit mining in Kansas. B. Scobee. il Colliery 31:232-3 N '13

Mexico

Destruction of coal-mining plant at Lampacitos. il Eng & Min J 96:557-8 S 20 '13

Montana

Coal fields of Montana. E. Stehlinger. bibliog map Am Inst Min E Bul 81:2329-59 S '13

Pennsylvania

Pennsylvania anthracite mine cave commission report and recommendations. Colliery 33:504-7 Ap '13

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Notable Scottish colliery (Newbattle). il Colliery 33:671-3 JI '13

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Lignite mining at Hoyt, Texas. il Colliery 34:93-4 S '13

Coal mining institute of America

Annual meeting, Pittsburg, 1912. Colliery 33:378-9 F '13

Semiannual meeting, Pittsburg, June 18, 1913. Colliery 34:26-7 Ag '13

Coal mining institutes

Rocky mountain coal mining institute—meetings of the West Virginia and Kentucky institutes. Mines & Min 33:298-9 Ja '13

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German coal picking table. il Am Ind 13:35-6 F '13

Preparation of a domestic coal. J. D. Rogers. il Colliery 33:426-8 Mr '13

Preparation of coal. G. Buchanan. Colliery 34:51-2 Ag '13

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Coal products company's power plant. S. G. Artngstall, jr. il plan Power 38:384-7 S 16 '13

Coal sampling. See Coal—Analysis**Coal sheds.** See Coal storage**Coal storage**

Concrete coal sheds are durable and fireproof. il Concrete Cem 1:71 D '12

Deterioration and spontaneous combustion of gas coal. P. Barker. Am Soc M E J 35:279-84 F '13

Spontaneous heating of stored coal, its cause and prevention. Sci Am S 75:10-1 Ja 4 '13

Spontaneous ignition of coal. T. A. Peebles. Power 38:486-7 S 30 '13

Submerged coal storage in concrete pit of Indianapolis light and heat co. il Elec Ry J 42:391 S 6 '13; Eng N 70:527-8 S 11 '13; Power 38:485-6 S 30 '13

Coal-tar trust

Defense of American coal products co. R. P. Perry. Eng Rec 67:418-9 Ap 12 '13

Coal testing

Adaptation of boiler to available coal. H. Kreisinger and W. T. Ray. diags Power 38:255-9 Ag 19 '13

Chemical interpolation of anthracite. M. S. Hachita. Colliery 33:373-5 F '13

Coal testing under difficulties. B. S. Hanson. Power 37:473-4 Ap 1 '13

Coking of coal at low temperatures. Sci Am 108:353 Ap 19 '13

Coking of coal at low temperatures. S. W. Parr and H. L. Olin. il Sci Am S 75:252-5 Ap 19 '13

Economy in purchasing and using coal. A. O. Doane. Eng M 45:398-404 Je '13

Efficiency valuation of fuels. W. F. Elwood. Colliery 34:23-5 Ag '13

Coal testing—Continued.

- Government specifications for the purchase of coal. *Met & Chem Eng* 11:293-1 *My* '13
 Lignite coal testing plant at Estevan, Sask. *Ry Age* 55:1121-2 *D* 12 '13
 Pishel coking test. M. A. Pishel. tables *Colliery* 33:674-8 *Jl* '13; Excerpts. *Eng M* 15: 897-8 *S* '13
 Power plant chemical laboratory practice. *Power* 37:168-9 *F* 4 '13

Coal trade

- Growth of the coal trade. *il Sci Am S* 75:55 *Ja* 25 '13

Coal washing

- Coal washing in Illinois. F. C. Lincoln. *il diags Ill U Eng Exp Sta Bul* 69:1-108 '13
 Washery at Soddy mine, Tennessee. F. E. Mueller. *il Mines & Min* 33:295-7 *Ja* '13

Coaling stations

- Concrete coaling station, Atlanta & West Point R. R., Newnan, Ga. *il Ry & Eng R* 53:201 *Mr* 8 '13
 Modern coaling station. *Ry Age* 54:1182-3 *My* 30 '13
 Modern locomotive coaling station. *Ry Age (Mech ed)* 87:294-5 *Je* '13

Coast defense

- Electricity in the United States army and coast defense. E. M. Weaver. *Elec W* 61: 226, 242-3 *F* 1 '13
 Fort that travels on wheels: Schneider mobile batteries for coast defense. *il Sci Am* 109: 469 *D* 20 '13

Coating with metal. See Metal coating**Cobalt**

- Cobalt depositing bath. *Foundry* 41:440-1 *O* '13
 Determination of nickel and cobalt. R. L. Hallett. *Eng & Min J* 95:857-8 *Ap* 26 '13

Cobalt alloys

- Alloys of cobalt with chromium and other metals. E. Haynes. *Am Inst Min E Bul* 74:249-55 *F* '13
 New material for lathe tools. E. Haynes. *il Mach* 19:463 *F* '13

Coca

- What is coca? *Sci Am* 109:224 *S* 20 '13

Cocaine

- Cocainomania at Montmartre. *Sci Am* 108: 337 *Ap* 12 '13

Cofferdams

- Coffer-dam on sand bottom; Ohio river dam no. 48. J. C. Oakes. plans *Eng N* 69:702-4 *Ap* 10 '13
 Construction work on a short railroad branch. *il diag Eng Rec* 67:666 *Je* 14 '13
 Difficulties in placing the substructure for a swing bridge; cofferdam of wood and sheet steel piling, Newark, N. J. plans *Eng Rec* 67:268-9 *Mr* 8 '13
 Failure of coffer at lock and dam no. 48, Ohio river. J. C. Oakes. plans *Eng N* 70: 231-2 *Jl* 31 '13; Same. *Eng Rec* 68: 120 *Ag* 2 '13
 Ohio river lock and dam 48; building half a mile of cofferdam in 15 to 25 feet of running water to inclose 20 acres of sandy, shifting river bottom. *il plan Eng Rec* 67: 412-3 *Ap* 12 '13
 Semicircular coffer-dam, closing the entrance of a dry dock under construction. plans *Eng N* 70:856-7 *O* 30 '13

See also Bridges—Foundations and piers; Foundations; Piles and pile driving

Coins

- Hardness of coins. T. K. Rose. *il Sci Am S* 75:78 *F* 1 '13

Coke

- Coke and iron ore freight rate decisions. *Iron Age* 91:1478-80 *Je* 19 '13
 Coke rate reduction. *Iron Tr R* 53:186 *Jl* 31 '13
 Coking of coal at low temperatures. *Sci Am* 108:353 *Ap* 19 '13
 Coking of coal at low temperatures. S. W. Parr and H. L. Olin. *il Sci Am S* 75:252-5 *Ap* 19 '13

Connellsville coke prices for thirteen years.

- Iron Age* 91:383 *F* 6 '13
 High prices of coke in 1912. C. F. Williams. *Iron Tr R* 52:127-8 *Ja* 2 '13
 Important changes in coke and iron ore rates. *Iron Tr R* 52:1415-6 *Je* 19 '13
 Investigation of cupola melting operations. *il diags Foundry* 41:309-18 *Ag* '13
 Pro's and con's on coke manufacture. F. S. Johnson. *Colliery* 34:312-3 *D* '13
 Recent experiments on coke hardness. *Iron Age* 92:296 *Ag* 7 '13
 Smelting iron electrically with coke as fuel. H. J. Hanson. *il Iron Tr R* 53:1003-7 *D* 4 '13
 Stimulus to by-product coking. *Met & Chem Eng* 11:427 *Ag* '13
 Waste in coking. G. E. Mitchell. *il Colliery* 34:74-6 *S* '13

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Coke-oven gas

- Ammonium sulphate from coke oven gas. *Iron Age* 92:403 *Ag* 21 '13
 Benzol—how it is recovered from coal gas. F. Puning. *il Iron Tr R* 53:625-32 *O* 9 '13
 Blast furnace and coke oven gases. *Iron Age* 92:669 *S* 25 '13
 Briquetting pitch from coke oven tar. *Iron Age* 92:589-90 *S* 11 '13
 By-product coke. C. W. Andrews. *Am Inst Min E Bul* 73:47-50 *Ja* '13; Same. *Iron Tr R* 52:60 *Ja* 2 '13
 By-product ovens for manufacture of coke. C. A. Meissner. *diags Iron Tr R* 52:1412-5, 1455-7 *Je* 19-26 '13; Same cond. *Met & Chem Eng* 11:454-8 *Ag* '13; Same cond. *Eng M* 15:722-4 *Ag* '13; Same cond. *Sci Am S* 76:290-2 *N* 8 '13
 By-products of retort coke manufacture. C. A. Meissner. *Iron Age* 91:1365-8 *Je* 5 '13
 Cleaning coke-oven gas. S. F. Walker. *il plan Colliery* 33:349-51 *F* '13
 Gas power for collieries. S. F. Walker. *il diags Colliery* 33:613-6 *Je* '13
 Koppers oven installation at Joliet, Ill. *il plan Iron Tr R* 52:17-25 *Ja* 2 '13
 Manufacture of coke. F. E. Lucas. *Colliery* 23:351-2 *F* '13
 Manufacture of coke: discussion of the papers of W. H. Blauvelt, F. E. Lucas and C. W. Andrews. *Am Inst Min E Bul* 73: 153-67 *Ja* '13
 Mixing coke oven gas with the burnt stack gases in an open-hearth furnace. *diag Iron Age* 92:1439 *D* 25 '13
 Practical uses of coke-oven gas. *Iron Age* 92:1080-2 *N* 6 '13
 Production of coke in Koppers ovens at collieries. *il plans Iron Tr R* 53: 161-9 *Jl* 24 '13
 Recovery of by-products in coke manufacture. W. E. Hartman. *Iron Tr R* 52:799-801 *Ap* 3 '13
 Use of cold coke-oven gas in steel production. *plan Iron Age* 91:1014-5 *Ap* 24 '13
 Uses of blast furnace and coke oven gases; their practical application at the Cockerill works in Belgium. *Iron Age* 92:608-10 *S* 18 '13

See also Blast furnace gas

Coke ovens

- Beehive and by-product oven in coke production. *il Sci Am* 109:4 *Jl* 5 '13
 By-product coke ovens in the United States. *Eng & Min J* 96:784 *O* 25 '13
 Discussion of by-product coke oven. W. H. Blauvelt. *Iron Tr R* 52:1457-8 *Je* 26 '13
 Gas exhauster for coke ovens. *il Colliery* 34: 288-9 *D* '13
 Improved by-product coke oven; construction and claims of the Muller by-product oven. E. B. Wilson. plans *Eng M* 44:431-4 *D* '12
 Koppers oven installation at Joliet, Ill. *il plan Iron Tr R* 52:17-25 *Ja* 2 '13
 Manufacture of coke. F. E. Lucas. *Colliery* 33:351-2 *F* '13
 Modern by-product coke oven. *Met & Chem Eng* 11:382 *Jl* '13

Coke ovens—Continued.

- Modern by-product ovens for coke manufacture. C. A. Meissner, diags Iron Tr R 52:1294-8, 1359-4, 1412-5, 1455-7 Je 5-26 '13;
Excerpts, Iron Age 91:1332-8, 1365-8 My 29-Je 5 '13
- Motor fuel from coal: higher recovery of light oils by the use of limestone in the by-product coke ovens. A. Rollason and A. W. Taylor, Eng M 46:434-6 D '13
- Production of coke in Koppers ovens at English collieries, il plans Iron Tr R 53:161-9 Jl 24 '13
- Recovery of by-products in coke manufacture. W. E. Hartman, Iron Tr R 52:799-801 Ap 3 '13
- Steel-plant coke ovens. R. L. Streeter, il Eng M 44:494-510 Ja '13
- Sydney, Nova Scotia new coke oven plant. F. E. Lucas, il plan Iron Age 91:92-3 Ja 2 '13
See also Fire brick

Cold

- Cold in nature and in science: extremes of temperature in cosmic space and in the laboratory. Sci Am S 76:50-1 Jl 26 '13
- Life without heat. Sci Am 108:370 Ap 26 '13
See also Heat; Temperature

Cold-frames

- How to build concrete hot-beds and cold-frames, il Concrete Cem 1:60 D '12

Cold-heading. C. L. Lucas and E. W. Duston, il diags Mach 19:667-71 My '13**Cold light**

- Chemical production of light. W. D. Bancroft, J Fr Inst 175:129-49 F '13; Same, Sci Am S 76:254-6 O 18 '13
- Cold light: invention of C. F. Dussaud. Sci Am 108:486 My 31 '13
- Dussaud's cold light. Sci Am 108:138 F 8 '13
- Dussaud's cold light. J. Boyer, il Sci Am 108:489 My 31 '13

Cold storage

- Cold storage temperatures. Sci Am S 76:76 Ag 2 '13
- Comparative installation and operating costs of a combined ice-manufacturing and cold-storage plant. R. H. Tait and L. C. Nordmeyer, Power 38:606-8 O 28 '13
- Temperature of storage rooms, plan Power 37:748 My 27 '13

See also Refrigeration; Refrigerator cars

Collapse of buildings. *See* Building failures**College architecture**

- Large arch-truss drill-hall, for university of Illinois. Eng N 70:1182-5 D 11 '13
- Layout for new buildings of Massachusetts institute of technology. Arch Rec 33:272-5 Mr '13
- New engineering buildings at Minnesota. il Iron Tr R 53:73-5 Jl 16 '13

See also Columbia university—Journalism building; Massachusetts institute of technology

College graduates

- College man and the railroads. I. L. Lee, Ry Age 55:49-50 Jl 11 '13
- College marks and business. F. G. Higbee, Am Mach 38:790 My 8 '13
- College men and the railroads: symposium. Ry Age (Mech ed) 87:589-2, 638-40 N-D '13
- College men underground. H. F. Davis, Eng & Min J 95:31-2 Ja 4 '13
- Study of incomes of technically trained men. D. E. Rice, Sci Am 109:116 Ag 9 '13
- Why don't railroads hold the college man? Ry Age (Mech ed) 87:523-4 O '13

College theses. *See* Engineering theses**Colleges and universities**

- Beginnings of famous universities. Sci Am S 75:160 Mr 8 '13
- Four versus five or more years of collegiate education. A. C. Humphreys, Stevens Ind 30:189-202 Jl '13
- Our universities and industrial research. A. D. Little, Sci Am S 76:311 N 15 '13
See also College architecture; College graduates; Industrial service movement

Administration

- Academic efficiency. W. Kent, Stevens Ind 30:20-36 Ja '13

Collisions

- Speed factor in collisions. Sci Am 109:138 Ag 23 '13

Collisions (railroad). *See* Railroads—Accidents**Collisions at sea**

- Experiments on "suction" between passing vessels. A. H. Gibson and J. H. Thompson, diags Sci Am S 76:269-72 O 25 '13
See also Salvage

Colloids

- Colloids and crystals. R. H. Bradbury, J Fr Inst 176:319-28 S '13; Same, Sci Am S 76:246-7 O 18 '13

Cologne, Germany

- Bridge over the Rhine at Cologne. C. J. Kavanagh, il plans diags Eng N 70:845-9 O 30 '13

Colombia**Industries and resources**

- Gold placers of Antioquia. M. H. De Hora, map Am Inst Min E Bul 79:1197-1200 Jl '13

Colonial architecture. *See* Architecture, Colonial**Color**

- Artificial daylight for color matching. R. F. Pierce, il Sci Am S 76:133-4 Ag 30 '13
- Influence of colored surroundings on the color of the useful light. Elec W 61:410-1 F 22 '13
- Mixing colors in light versus colors in pigments. Elec W 62:1166 D 6 '13
See also Colorimeters; Paint; Pigments

Color of flowers

- Floral blue. P. Q. Keegan, Sci Am S 75:323 My 24 '13

Color photography

- Marino system of color telephotography. il Sci Am 108:272 Mr 22 '13

Color printing

- Milton A. McKee, inventor of McKee process. S. H. Horgan, por Inland Ptr 51:749-50 Ag '13
- Scientific accuracy and color. J. F. Earhart, Inland Ptr 52:69-70 O '13
See also Color photography

Colorado

- Water-right controversy between Colorado and Kansas. Eng Rec 67:395 Ap 12 '13
See also Railroads—Colorado

Colorado & Southern railroad

- Comparison of condition in 1912 and in 1913. map Ry Age 55:1058-9 D 5 '13
- 14th annual report for year ended June 30, 1913. Ry Age 55:1161-2 D 5 '13

Colored moving pictures. *See* Moving pictures, Colored**Colorimeters**

- New precision colorimeter. P. G. Nutting, il U S Bur Stand Bul 9:1-5 Mr 15 '13
- Quantitative spectrum analysis: colorimeters. G. A. Shook, diags Met & Chem Eng 11:494-7 S '13

Coloring of metals. *See* Metal coloring**Columbia university****Avery library**

- Design of the Avery architectural library. C. M. Price, il plans Arch Rec 33:533-49 Je '13
- Notes on the collection of the Avery architectural library. G. L. Hunter, il Arch Rec 33:550-66 Je '13

Journalism building

- Views and details of the Journalism building, Columbia University. Arch & Bldg 45:429-4 O '13

Columbian exposition, 1893. *See* Chicago, World's Columbian exposition, 1893**Columbus, Ohio**

- Columbus flood-protection: recommendations of the consulting hydraulic engineers. il Eng N 70:631-3 S 25 '13

Columbus, Ohio—Continued.**Flood, 1913**

Recent flood. J. Griggs. *il map Eng N 69:744-8 Ap 10 '13*

Sanitary affairs

Operation of Columbus garbage reduction plant. *Eng Rec 68:220-1 Ag 23 '13*; Same. *Munic Eng 45:321-3 O '13*; Same cond. *Eng N 70:562 S 13 '13*
Operation of sewage disposal plant. *il Munic Eng 44:486-91 Je '13*

Columbus railway and light company

Annual meeting, 1913. *Elec Ry J 41:394-5 Mr 1 '13*

Columns

Columns in the new Grand Central terminal, New York city. plans *Eng Rec 67:125-6 F 1 '13*

Combination concrete and cast iron for columns and arch ribs. *il Eng N 70:864-5 O 30 '13*

Comparison of column formulæ. E. L. Lasier. *Eng Rec 68:41-2 Jl 12 '13*

Deflection method of calculating the strength of columns and stanchions. A. J. Murray. *Int Marine Eng 18:298-301, 351-3 Jl-Ag '13*

Direct method of designing columns. G. Paaswell. *Eng N 69:1333 Je 26 '13*

Strength of outstanding flanges in beams and columns. R. J. Roark. *Eng Rec 68:722-3 D 27 '13*

U. S. navy column tables not based upon a fundamental misconception. E. Anderson. *Int Marine Eng 18:497-8 N '13*

See also Architecture; Orders of architecture; Strains and stresses

Columns, Concrete

Concrete columns without molds. R. M. Jones. *il Eng M 46:423-5 D '13*

Intercepting spirals as column reinforcement. *il Concrete Cem 2:302-3 Je '13*

Protection of corners of interior columns. *Concrete Cem 2:289-90 Je '13*

Relative economy in column forms. *diags Concrete Cem 3:75 Ag '13*

Report of test of reinforced concrete column. *il plan Concrete Cem 2:84 F '13*

Structural steel cores for concrete building. *Concrete Cem 2:123-4 Mr '13*

Tests of reinforced-concrete wall and column footings. *Eng Rec 68:126-8 Ag 2 '13*

Transverse reinforcement for columns. *Concrete Cem 1:92-3 D '12*

Transverse reinforcement for columns. R. A. Cummings. *Concrete Cem 2:127 Mr '13*

Combustion

Exhaust gases from oils and gas fuels. J. C. Smallwood. *Power 38:682-3 N 11 '13*

Flameless combustion and automobiles of the future. *il diags Automobile 28: 934-6 My 1 '13*

Heat balance in steam boilers. L. S. Marks. *Power 37:42-7 Ja 14 '13*

Principles of combustion. (Engineers' study course) *Power 37:582-4, 617, 648-9, 686-7 Ap 22-May 13 '13*

Study of the oxidation of coal and of the process of combustion. H. C. Porter. *Met & Chem Eng 11:543 O '13*

Surface combustion. *Elec W 62:362 Ag 23 '13*

Surface combustion. C. D. McCourt. *diags Eng M 45:589-92 Jl '13*

Temperature limits in combustion. R. W. A. Brewer. *Automobile 29:598-9 O 2 '13*

See also Fire; Firing; Fuel; Heat; Mechanical draft; Smoke; Smoke prevention

Combustion, Spontaneous. See Spontaneous combustion**Comfort stations. See Public comfort stations****Commerce**

Planning for commerce via Panama canal. C. M. Pepper. *il Iron Age 92:834-7 O 16 '13*

See also Accounting; Advertising; Banks and banking; Bookkeeping; Business; Canals; Carriers; Commercial law; Contracts; Corporations; Credit; Foreign exchange; Freight; Government regulation of industry; Harbors; Interest; Manufactures; Packing for shipment; Ports; Profit sharing; Rail-

roads; Salesmen and salesmanship; Shipping; Tariff; Trade-marks; Transportation; Trusts; Warehouses; Waterways; Weights and measures; also names of countries, sub-head Commerce

Commerce court

Utility of the Commerce court. *Elec Ry J 41:525 Mr 15 '13*

Commercial correspondence

Correspondence. H. Sibley. *Am Mach 38:828-9 My 15 '13*

Efficient methods of handling correspondence. J. L. Hanna. *Ry Age 51:61-3 Ja 10 '13*

Commercial law

European laws and the American manufacturer. A. J. Wolfe. *Am Ind 13:28 Je '13*

Pennsylvania C. P. A. examinations of November, 1912. *J Account 15:370-6 My '13*

See also Accountants, Public—Law; Arbitration, Industrial; Banking law; Carriers; Corporation law; Foreign exchange; Insurance, Employers' liability; Interstate commerce law; Patent laws; Railroad law; Sherman anti-trust law

Commercial travelers

See also Salesmen and salesmanship

Commission plan. See Municipal government—Commission plan**Commissions, Port. See Port commissions****Common carriers. See Carriers****Commonwealth Edison company**

Electric service in Chicago. *il map Elec W 61:1137-45 My 31 '13*

Operating features. *il Elec W 62:633-6 S 27 '13*

Plant extensions. *il Iron Tr R 53:1148 D 25 '13*

Commutators

Care and operation of commutators. H. S. Page. *plan Power 37:706-8 My 20 '13*

Commutating-pole saturation in d-c. machines. H. E. Stokes. *Am Inst E E Pro 32: 1622-39 Jl '13*

Commutation and brush loss. C. E. Wilson. *Am Inst E E Pro 32:640-8 F '13*

Home-made commutator truing rig. *il Elec W 61:415 F 22 '13*

Stray loss in direct-current commutating machines. H. F. T. Erben and H. S. Page. *Am Inst E E Pro 32:282-9 F '13*

Use of the synchronous commutator in alternating current measurements. F. Bedell. *bibliog il J Fr Inst 176:385-404 O '13*

See also Dynamos; Electric motors; Phase advancers

Compensation laws. See Workmen's compensation**Compensators. See Electric transformers****Competition**

Purchasing agent and publicity: two neglected factors in price stabilization. J. C. Jay, jr. *Iron Age 91:310-1 Ja 30 '13*

Unintelligent competition: brass manufacturers and their profit. S. Jacobsen. *Metal Ind n s 11:247 Je '13*

See also Trusts

Competition, Engineering. See Engineering competition**Composition flooring: comparison of its most important characteristics with those of eighteen other materials. Eng Rec 68:635-6 D 6 '13****Compound words**

Compounding. L. Hochheimer. *Inland Ptr 50: 734-5 F '13*

Phrases or compound words? F. H. Teall. *Inland Ptr 52:76 O '13*

Whims and inconsistencies of Webster. J. M. Johnson. *Inland Ptr 51:275-6 My '13*

Compressed air

Air compressors and compressed-air machinery. R. L. Streeter. *il Eng M 45:822-32; 46: 19-36, 177-93, 381-99 S-D '13*

Air-operated dump car. *il diag Eng N 69: 1162-3 Je 5 '13*

Air receiver explosion. J. King. *Power 37:352 Mr 11 '13*

Compressed air—Continued.

- Air-receiver inspection needed. R. S. Hart. Power 38:479-80 S 30 '13
- Air supply and the air receiver. F. Richards. plan Power 37:472-3 Ap 1 '13
- Compressed air as a foundry auxiliary. il Iron Age 91:196-9 Ja 16 '13
- Compressed air as a protection for battleships. R. G. Skerrett. Sci Am 108:266 Mr 22 '13
- Compressed air measuring tank. il Eng & Min J 95:1000 My 17 '13
- Compressed-air mine haulage. W; Z. Price. il Colliery 34:142-5 O '13
- Compressed air system of the Anaconda copper mining co., Butte, Mont. B. V. Nordberg. il Am Inst Min E Bul 81:2225-87 S '13
- Compressed-air transmission on the Hautier system. diag il Automobile 28:1390-1 Je 26 '13
- Electric vs. compressed air hoists. K. A. Pauly. il Eng & Min J 95:653-8 Mr 29 '13
- Electrically driven compressed air plant. il Colliery 34:94-5 S '13
- Entropy-temperature and transmission diagrams for air. C; R. Richards. il U Eng Exp Sta Bul 63:1-20 '13
- Estimated working capacity and weights of starters operated by compressed air shot into cylinders. Automobile 29:1069 D 4 '13
- Experimental and theoretical investigation of compressed air machinery. E. Groedel. diags Am Soc M E J 35:1563-7 O '13
- Explosions in air lines. R. B. Anthony. Power 37:199-200 F 11 '13
- Filter for compressed air. diag Eng & Min J 95:615 Mr 22 '13
- Foreign requirements governing work under compressed air. P. Seurot. Eng N 70:566 S 18 '13
- Graphic solution of compressed air transmission formula. N. Herz. Eng & Min J 95:228-30 Ja 25 '13
- How compressed air is used for sheep shearing, cutting sugar cane, and shifting automobile gears. il Sci Am 109:8-9 J 5 '13
- Investigation of compressed air apparatus. R. Harm. diag Am Soc M E J 35:695-8 Ap '13
- Measuring air from compressor. R. S. Bayard. Power 37:198-9 F 11 '13
- New York law governing work under compressed air. Eng N 70:307-8 Ag 14 '13
- Oversight in the compressed-air law. F. Richards. Eng N 70:425-6 Ag 28 '13
- Power transmission by compressed air. G; Barr. Power 37:296-7 Mr 4 '13
- Raising a wrecked Atlantic liner by compressed air. Eng N 70:419-20 Ag 28 '13
- Sale of power on the Rand. A. E. Hadley. map Eng & Min J 96:106-8 J 19 '13
- Time studies and air consumption. A. Formis. il Eng & Min J 95: 1183-5 Je 14 '13
- Victoria Falls and Transvaal power co. in South Africa. map Power 38:355-8 S 9 '13
- See also* Air compressors; Vacuum cleaning
- Compressed oxygen.** *See* Oxygen, Compressed
- Comptometer**
- Making small parts on screw machines. il diag Iron Age 91:360-1 F 6 '13
- Computing.** *See* Calculating
- Comstock lode**
- Mining on the Comstock lode. W. Symmes. map Eng & Min J 95:129-30 Ja 11 '13
- Concentration.** *See* Ore treatment—Concentration
- Concrete**
- Action of acids, oils and fats on concrete. Eng N 69:504 Mr 13 '13
- Applications of concrete on the Long Island R. R. F; Auryansen. il Ry & Eng R 53:818-20 Ag 30 '13
- Cold weather concrete. F. A. Jordan. Eng & Min J 95:674 Mr 29 '13
- College shrine, the initial letter of Utah University in concrete. H. Goff. il Concrete Cem 2:83 F '13
- Concrete among the ancients. Concrete Cem 2:2 Ja '13
- Concrete deposited under sea water. H. R. Stanford. il Concrete Cem 2:65 F '13
- Cracks in concrete. Munic Eng 45:54-6 J 11 '13
- Effect of too much water in mixing concrete. Eng N 69:1063 My 22 '13
- Excess cement in concrete. W. A. Aiken and W. R. Mason. Eng N 70:1013-1 N 29 '13
- Fuller's rule for concrete quantities. Eng & Min J 95:1051 My 24 '13
- Joint committee on concrete and reinforced concrete; abstract of 2d report. Eng N 69: 258-64 F 6 '13
- Marketing mine tailings for concrete. F. M. Clutter. il Concrete Cem 2:15-6 Ja '13
- Method of proportioning concrete. W; B. Hunter. Eng N 69:956-8 My 8 '13
- Mixing and placing of concrete. H; Barnes. Eng Rec 67:419 Ap 12 '13
- 9th annual convention of National assn. of cement users, Pittsburgh, 1912. Concrete Cem 2:3-5 Ja '13
- Oil-mixed mortars and concretes; an absolute waterproofing material. L. W. Page. Eng M 44:109-13 O '12
- Proposed test of sand for concrete. Eng Rec 68:202 Ag 23 '13
- Sand tests essential to good work. W. B. Reinke. Concrete Cem 2:84-6 Ag '13
- Strength deficiency of overwet and of undermixed concrete. E. McCullough. Eng N 70: 1250-1 D 18 '13
- Testing of sand for concrete. Ry & Eng R 53: 740-1 Ag 2 '13
- Water as an element in concrete construction. H. A. Mark. Munic Eng 41:455-6 My '13
- Waterproofing a boiler pit. C; G. Ruess. Concrete Cem 2:74-5 F '13
- Waterproofing of concrete structures. Eng M 45:899-901 S '13
- Why not use more cement in concrete? Eng N 70:879-80 O 30 '13
- See also* Asphalt; Cement; Concrete, Reinforced; Concrete construction; Concrete products; Gravel; Grouting; Pavements, Concrete; Roads, Concrete; Sand; Waterproofing
- Curing**
- Curing hollow walls by filling them with water. A. S. Merriett. Concrete Cem 2:268 Je '13
- Steam curing. C. J. Rowley. Concrete Cem 1:296-7 D '12
- Winter curing in products manufacture. Concrete Cem 2:24 Ja '13
- Finishing**
- Color and texture of concrete products. A. Schilling. il Concrete Cem 2:6-8 Ja '13
- Concrete floor finish and its execution. L. Eid. Concrete Cem 2:230-2 My '13
- Methods in painting concrete surfaces. L. P. Nemzek. Concrete Cem 2:232-3 My '13
- Treatment of concrete surfaces. G; Whigelt. Ry Age 55:984-5 N 21 '13
- See also* Concrete, Ornamental
- Fire resistance**
- English fire test on concrete doors. il plan Concrete Cem 3:216 N '13
- Experience with concrete in fires, with discussion. G. E. Fisher. Am Soc M E J 35: 1022-8 Je '13
- Review of concrete as a fire-resistant. Concrete Cem 3:161 O '13
- Thermal properties of concrete. Ind Eng 13: 368 Ag '13
- Thermal properties of concrete. C; L. Norton. Am Soc M E J 35:1011-21 Je '13
- Mixing**
- See* Concrete mixers; Concrete mixing
- Testing**
- Determining proportions of concrete mixtures after hardening. H. Burchartz. Eng Rec 68: 278-9 S 6 '13
- Experiments to determine relation between compressive strength and speed of boring in concrete. C. S. Duke. il Eng Rec 68:670-1 D 13 '13
- Fire, load and water test of floor arches. il Sci Am 109:115 Ag 9 '13

Concrete—Testing—Continued.

- Fire, load and water test upon cinder-concrete, terra-cotta and gypsum floor arches. H. Perrine. *il plan Eng N 70:374-5 Ag 21 '13*
- French tests on oil-mixed concrete. *Eng N 70:1228 D 18 '13*
- Investigation of the strength of cinder concrete. G. E. Strehan and H. Perrine. *il Eng N 70:722-4 O 9 '13*
- Method and apparatus for determining consistency. *Eng Rec 68:52 J1 12 '13*
- Methods for testing concrete waterproofing. C. M. Chapman. *Concrete Cem 2:35-7 Ja '13*
- Methods of tests for concrete materials. *Eng N 69:42-3 Ja 2 '13*
- Pressure test with wet concrete. *il Concrete Cem 2:187-8 O '13; Eng N 70:294-5 Ag 14 '13*
- Severe test of paving slabs. *il Concrete Cem 2:270, 305-7 Je '13*
- Tests of three types of floor arches. *il diag Concrete Cem 3:169-70 O '13*

See also Concrete, Reinforced—Testing

Concrete, Effect of alkalis on

- Action of alkali and sea water on concrete: the U. S. Bureau of standards report. *Eng N 70:50-1 J1 10 '13*
- Alkali action on concrete; investigations by the United States reclamation service. J. Y. Jewett. *Eng M 44:267-9 N '12*
- Concrete in alkali soils. *Concrete Cem 2:291-2; 3:69-72 Je, Ag '13*

Concrete, Effect of electricity on

- Effects of electric currents on concrete. E. B. Rosa and others. *J Fr Inst 175:425-7 Ap '13*
- Electric currents—action on concrete. *il Concrete Cem 2:132-3 Mr '13*
- Electrolysis in reinforced concrete. E. B. Rosa, B. McCollum and O. S. Peters. *Eng M 44:951-3 Mr '13*

Concrete, Effect of manure on

- Effect of stable refuse on concrete. B. Brooks. *il Eng N 70:317 Ag 14 '13*

Concrete, Effect of moisture on

- Effect of moisture on the strength of concrete. E. McCullough. *Eng N 69:224 Ja 30 '13*
- Effect of moisture on the strength of concrete: an explanation of concrete drain tile failures. S. M. Woodward and F. C. Young. *Eng N 69:127-8 Ja 16 '13*

Concrete, Effect of salts on

- Effect of sodium chloride and calcium chloride on strength of concrete. *Eng Rec 68:466 O 25 '13*
- Effect of sodium chloride and calcium chloride upon concrete cured at low temperatures. *Concrete Cem 3:256-7 D '13*

Concrete, Effect of sea water on

- Concrete in alkali soils. *Concrete Cem 3:69-72 Ag '13*
- Four-year test of the effect of sea water on concrete. *Eng N 70:1023 N 20 '13*

Concrete, Effect of sugar on

- Effect of sugar on concrete. C. A. Newhall. *Eng N 69:478-9 Mr 6 '13*

Concrete, Effect of temperature on

- Influence of temperature on concrete. W. A. Hoyt. *Eng Rec 67:66-8 Ja 18 '13*
- Influence of temperature on concrete: letters. W. A. Hoyt; E. McCullough. *Eng Rec 67:223-4 F 22 '13*

Concrete, Ornamental

- Color and texture of concrete products. A. Schilling. *il Concrete Cem 2:6-8 Ja '13*
- Concrete products—architectural considerations. *il Concrete Cem 3:155-60 O '13*
- Concrete stone tooled by machinery; methods in manufacture and use of products of the Onondaga litholite company. *il Concrete Cem 2:61-5 F '13*
- Cut surface-finish for concrete: Deutsche museum, Munich, Germany. *il Eng N 70:358-60 Ag 21 '13*
- Egyptian architecture reproduced in concrete stone. G. F. Hammond. *il Concrete Cem 3:251-2 D '13*

- How to produce realistic stone facings. C. H. Doubler. *il Concrete Cem 1:55-6 D '12*
- Molding sand cores for floor construction. F. Squires. *il Concrete Cem 2:213-8 My '13*
- Ornamental concrete lamp posts. H. G. Hall. *il plan Concrete Cem 2:226-7 My '13*
- Ornamental use of concrete in playground structures in Hoboken park improvement. *il plans Concrete Cem 1:41-7 D '12*
- Pennsylvania railroad has incased unsightly eight-track and five-track plate-girder spans in ornamental concrete. *il plans Eng Rec 68:401-2 O 11 '13*

Concrete, Reinforced

- Beam design, Short-cuts in. *plan Eng N 69:570-2 Mr 20 '13*
- Bending moments in continuous reinforced-concrete beams. S. E. Thompson. *Eng Rec 67:639-40 Je 7 '13*
- Concrete beams for underground use. *diags Eng & Min J 95:1095 My 31 '13*
- Concrete floor failure in Detroit. E. H. Owen. *plan Eng Rec 67:165-6 F 8 '13*
- Design and construction of reinforced concrete. E. P. Wells. *Eng N 69:2-3 Ja 2 '13*
- Disintegration of concrete and corrosion of reinforcing metal. *Ry Age 54:632-3 Mr 20 '13*
- 500-ton reinforced-concrete scow. C. E. Sudler. *il plan Eng N 69:466-7 Mr 6 '13*
- Flange width in T-beams in tile and concrete floors. E. McCullough. *Eng N 69:1078 My 22 '13*
- Graphical analysis of double-reinforced-concrete sections. S. Klein. *Eng Rec 68:252 Ag 30 '13*
- Joint committee on concrete and reinforced concrete; abstract of 2d report. *Eng N 69:258-64 F 6 '13*
- Lining ditches with reinforced concrete. *il Concrete Cem 2:265-7 Je '13*
- Lock-form metal fabric. *il plan Concrete Cem 2:52 Ja '13*
- Method of computing reinforced concrete T-beams. G. Hansen. *Eng Rec 67:102 Ja 25 '13*
- New reinforced concrete reservoir at Council Bluffs. *plans Eng Rec 67:39-40 Ja 11 '13*
- Reinforced concrete. C. H. Moorefield. *plans U S Pub Road Bul 45:13-7 '13*
- Reinforced-concrete elevated sidewalks, East St. Louis, Ill. E. R. Rodenberg. *il Eng N 69:62 Ja 9 '13*
- Reinforced concrete water tank. A. E. Dixon. *il Concrete Cem 1:67 D '12*
- Re-rolled steel rail reinforcing bars. W. K. Hatt. *Concrete Cem 3:10-1 J1 '13*

See also Concrete, Effect of electricity on; Concrete construction; Concrete slabs

Testing

- Comparative test of two full-sized reinforced-concrete flat-slab panels. H. T. Eddy. *il Eng N 69:624-8 Mr 27 '13*
- Determination of "N" by means of ultimate load tests. S. Klein. *Eng Rec 67:536 My 10 '13*
- Reinforced concrete slabs under concentrated loading. A. T. Goldbeck. *diags Concrete Cem 3:56-9 Ag '13*
- Reinforced concrete wall footings and column footings. A. N. Talbot. *il U Eng Exp Sta Bul 67:1-114 '13*
- Report of test of reinforced concrete column. *il plan Concrete Cem 2:84 F '13*
- Shearing strength of joints between old and new concrete. *il Eng Rec 67:500 My 3 '13*
- Test beam equipment. *il plan Concrete Cem 2:81-3 F '13*
- Testing rig for full-size concrete bridge slabs. *il Eng Rec 67:166 F 8 '13*
- Tests of concrete T-beams. *Eng Rec 67:356 Mr 29 '13*
- Tests of reinforced concrete buildings under load. *Concrete Cem 3:16-7 J1 '13*
- Tests of reinforced concrete buildings under load. A. N. Talbot and W. A. Slater. *il U Eng Exp Sta Bul 64:5-104 '13*
- Tests of reinforced-concrete slabs under concentrated loading. *Eng Rec 68:154-6 Ag 9 '13*
- Tests of reinforced-concrete wall and column footings. *Eng Rec 68:126-8 Ag 2 '13*

Concrete, Reinforced—Testing—Continued.

- Tests of the Norcross and mushroom flat slabs. Eng N 69:1139-40 My '13
 Tests on concrete tile and joist construction. il diags Concrete Cem 3: 82-3 Ag '13
 Tests vs. theory in reinforced-concrete flat slabs. W. A. Slater; A. C. Arend. Eng N 69:429-30 F '13

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- Cleveland tests of concrete block. Concrete Cem 3:26-7 Jl '13
 Concrete block. O. C. Hering. Concrete Cem 2:77 F '13
 Concrete block—a symposium. M. Wetzstein and others. Concrete Cem 2:139-42 Mr '13
 Concrete block—an architect's view. O. C. Hering. Concrete Cem 2:66 F '13
 Concrete block cottages built complete for \$1500 each. il plans Concrete Cem 2:137-8 Mr '13
 Concrete products—architectural considerations. il Concrete Cem 3:155-60 O '13
 Concrete products plant of J. F. Norris in Rochester; layout, equipment and methods. il plan Concrete Cem 1:68-71 D '12
 Concrete stone tooled by machinery; methods in manufacture and use of products of the Onondaga Litholite company. il Concrete Cem 2:61-5 F '13
 Development of concrete block. Concrete Cem 2:244-6 My '13
 German evangelical Lutheran church, Sacramento, Cal. built of white concrete block. il Concrete Cem 1:31 D '12
 How to produce realistic stone facings. C. H. Doubler. il Concrete Cem 1:55-6 D '12
 Manufacture of concrete products in Germany. J. Carstanjen, jr. il Concrete Cem 2:187-90 Ap '13
 Special concrete block for corn cribs. il Concrete Cem 2:264-5 Je '13
 Spraying freshly made block. C. C. Thompson. Concrete Cem 2:25 Ja '13
 Wet process block machine. il Concrete Cem 2:53-4 Ja '13

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- Bending moments in continuous reinforced-concrete beams. S. E. Thompson. Eng Rec 67:639-40 Je '13
 Bonding old and new concrete. Concrete Cem 2:246-1 My '13
 Cincinnati, O.—eight-story concrete building without interior columns. H. D. Loring. il plan Eng Rec 67:617-8 My '13
 Combination concrete and cast iron for columns and arch ribs. il Eng N 70:864-5 O '13
 Combined water tank and pumping station at Berlin, Ont. plan Eng Rec 67:126-7 F '13
 Complete structure of reinforced concrete in hollow tile forms. F. Squires. il Concrete Cem 3:222-3 N '13
 Concrete chimney construction. il Eng M 44: 956-8 Mr '13
 Concrete coal sheds are durable and fire-proof. il Concrete Cem 1:71 D '12
 Concrete construction in Dalton, Ga., water works. il Munic Eng 45:266-7 S '13
 Concrete ice house for the Northern Pacific Ry. at Pasco, Wash. plans Ry & Eng R 53:905-6 S '13
 Concrete in mine construction. A. F. Allard. Colliery 33:622-1 Je '13; Same cond. Eng N 69:1167 Je '13
 Concrete in railroad work. F. Auryansen. il Concrete Cem 2:37-40 Ja '13
 Concrete manure pits readily built at moderate cost. il Concrete Cem 2:86-7 F '13
 Concrete on a Kansas farm. C. Dillon. il Concrete Cem 3:183-4 O '13
 Concrete shaft station, Wolverine mine. C. T. Rice. plan Eng & Min J 96:397-9 Ag '30
 Concrete slabs in levee construction. E. B. Murray. il Concrete Cem 1:80-2 D '12
 Concrete station at Champion mine. plans Eng & Min J 96:641-2 O '13
 Concrete the floors and columns in the Butler bros. building, Chicago. il Eng Rec 67:49-50 Ja '13
 Constructing a ten-story concrete building, Long Island City, N. Y. il Eng Rec 68:319-20 S '13
 Construction of a model factory building. il plans Concrete Cem 3:151-3 O '13
 Construction of an 8-story shop-building; Fisher building, Detroit. J. N. Michaels. il plans Concrete Cem 2:57-60 F '13
 Construction of small concrete ice-houses. il Concrete Cem 3:36-7 Jl '13
 Contracting economics and administration. W. Sachs. Concrete Cem 3:257-9 D '13
 Cost of complete concrete structures. Eng & Min J 95:1295-6 Je '13
 Design features of San Diego Y. M. C. A. building. E. F. Cykler. il plans Concrete Cem 3:253-4 D '13
 Developments in unit construction. J. E. Conzelman. il plans Concrete Cem 2:67-71 F '13
 Economical concrete design. Eng N 70:886 O '13
 Economical concrete design; defense and explanation. E. Godfrey. Eng N 70:1251-2 D '13
 Economical depth of T-beams. R. W. Stewart. Eng N 69:844-5 Ap '13
 Economical design of steel girders embedded in concrete. G. Paaswell. Eng N 69:845 Ap '13
 Electrical equipment and concrete construction at Auckland harbor. W. Wilson. il Eng M 46:217-36 N '13
 Enclosing Jones' Falls, Baltimore, in concrete. S. S. Scott. il Concrete Cem 2:117-8 Mr '13
 Fastening machinery to concrete ceilings. R. Morley. Concrete Cem 2:288 Je '13
 Fastening timber plates to concrete walls. diag Concrete Cem 3:177-8 O '13
 Grain elevator construction. R. P. Durham. Concrete Cem 2:41-3 Ja '13
 Half mile of concrete barracks. R. M. Beanfield. il Concrete Cem 3:164-7 O '13
 Hoisting and placing concrete at low cost. M. D. Morrill. plan Concrete Cem 2:282 Je '13
 Home-made reinforced concrete factory. Nash engineering co., South Norwalk, Conn. il Iron Age 52:1149-52 N '13
 How-to-do-it information for farm work. Concrete Cem 3:36 Jl '13
 Importance of minor details. W. J. Bitterlick. Concrete Cem 1:59 D '12
 Industrial plant with all structures built of reinforced concrete; Barry-Wehmiller machinery co., St. Louis. W. J. Knight. il plans Eng Rec 67:256-8 Mr '13; Same cond. Ind Eng 13:188-9 Ap '13
 Inspection of reinforced concrete work in Los Angeles. H. Albright. Concrete Cem 2:235-6 My '13
 Keeping track of centering units. Concrete Cem 3:73-4 Ag '13
 Las Vegas arched masonry dam. il Eng Rec 67:17 Ja '13
 Lotus building at Memphis, Tenn. il plan Concrete Cem 2:177-8 Ap '13
 Method of computing reinforced concrete T-beams. G. Hansen. Eng Rec 67:102 Ja '25
 New campanile at Venice. Sci Am 108:152 F '13
 New cement plant in Vancouver; concrete sheet piling and heavy construction at precipitous site. il plan Eng Rec 68:123-4 Ag '23
 Ornamental use of concrete in playground structures in Hoboken park. il plans Concrete Cem 1:41-7 D '12
 Patents on concrete construction. C. A. P. Turner. Eng Rec 67:140 F '13
 Patents relating to concrete construction. Eng Rec 67:69-70 Ja '13

Concrete construction—Continued.

- Poured concrete buildings, D., L. & W. R. R. Nanticoke, Pa. *il Ry & Eng R 53:455-6 My 17 '13*
- Rapid construction for U. S. light & heating co., at Niagara Falls. *il Concrete Cem 2:175-6 Ap '13*
- Rapid execution of heavy foundation work. *Eng Rec 67:596-7 My 31 '13*
- Rebuilding Humboldt Bay, Cal. jetties. *Eng Rec 68:164-5 O 25 '13*
- Recessed steel panels as form units. *il plan Concrete Cem 2:250-1 My '13*
- Reinforced-concrete beacon tower, Alexandria, Egypt. *il plan Eng N 69:730-2 Ap 10 '13*
- Reinforced-concrete boat ways, Rockhaven harbor, N. D. S. R. Morrow. *il Eng N 70:645 O 2 '13*
- Reinforced-concrete factory buildings. H. C. Spillman. *il Ind Eng 13:281-3 Jl '13*
- Reinforced-concrete factory built under unusual conditions by Robbins & Myers co. at Springfield, O. N. D. Brainard. *il plan Eng Rec 67:410-1 Ap 12 '13*
- Reinforced concrete gas tank holder in Spain. *il Concrete Cem 3:234 Jl '13*
- Reinforced-concrete girders of unusual span. *il diag Eng Rec 68:503 N 1 '13*
- Reinforced concrete in factory construction at Milton, N. H. *il plans Concrete Cem 3:3-6 Jl '13*
- Reinforced-concrete ore docks. *il Eng N 69:8-12 Ja 2 '13*
- Roof construction. *il plan Concrete Cem 2:47-9 Ja '13*
- Safety in concrete construction. *Eng Rec 67:112 Ja 25 '13*
- Safety in concrete construction. F. E. Davidson; E. McCullough. *Eng Rec 67:392 Ap 5 '13*
- Safety in concrete construction. C. F. Lewis. *Eng Rec 67:251-2 Mr 1 '13*
- St. Louis filters. E. E. Wall. *il Eng N 70:1329-31 O 25 '13*
- Santa Fe roundhouse at Riverbank, Cal.: unit system of concrete construction. *il Ry Age 54:1080-1 My 16 '13*
- Segmental chimney construction in France. *plans Concrete Cem 2:332-5 Ja '13*
- Special concrete foundations in the Manila port district. J. W. Graham. *diags Eng N 70:554-5 S 18 '13*
- Specifications and design standards for reinforced-concrete structures. E. McCullough. *Eng N 69:282-3 F 6 '13*
- Steel forms for concrete construction. W. M. Venable. *il Concrete Cem 2:11-4, 279-81 Ja, Je '13*
- Steel sheet piling as concrete centering. *il plan Concrete Cem 3:88-9 Ag '13*
- Tannery buildings in reinforced concrete for American hide and leather co., Lowell, Mass. *il Concrete Cem 2:171-2 Ap '13*
- Test of pressure of wet concrete. E. B. Germain. *il Eng N 70:294-5 Ag 14 '13; Concrete Cem 3:187-8 O '13*
- Tests of reinforced concrete buildings under load. *Concrete Cem 3:16-7 Jl '13*
- Tests of reinforced concrete buildings under load. A. N. Talbot and W. A. Slater. *il Ill U Eng Exp Sta Bul 64:5-101 '13*
- Through fire and flood at Dayton, W. W. Smith. *il Concrete Cem 3:65-6 Ag '13*
- Time record in building. *il Concrete Cem 1:13-5 D '12*
- Two methods of treating concrete and reinforced concrete. *Concrete Cem 1:82 D '12*
- Unit structural concrete. C. D. Watson. *il Eng M 45:106-8 Ap '13*
- Using light lumber for beam and girder sides. *diag Concrete Cem 3:212 N '13*
- Wrapping I-beams. *Concrete Cem 2:237 My '13*

See also Bridges, Concrete; Chimneys, Concrete; Columns, Concrete; Concrete, Reinforced; Concrete houses; Concrete lining; Dams, Concrete; Domes; Fireproof construction; Floors, Concrete; Stairways, Concrete; Walls, Concrete; Water towers, Concrete; also Catskill aqueduct

Accounting

- Cost keeping for reinforced-concrete buildings. W. P. Anderson. *Eng M 45:34-49 Ap '13*
- Keeping concrete costs. M. C. Tuttle. *tables Eng Rec 67:9-11 Ja 4 '13*
- Scientific cost-keeping system for reinforced concrete. J. S. Nicholl. *Eng M 44:511-25 Ja '13*

Failures

- Building failure due to workmanship. *plan Concrete Cem 1:99-100 D '12*
- Causes of collapse of Stark-Lyman concrete building in Cedar Rapids. C. A. P. Turner. *Eng Rec 68:714-5 D 27 '13*
- Collapse of a reinforced-concrete frame in a building, Vancouver, B. C. A. P. Hueckel. *il plan Eng N 70:290-1 Ag 14 '13*
- Collapse of concrete Stark-Lyman building at Cedar Rapids, Iowa. C. Gayler. *Eng Rec 68:705 D 20 '13*
- Collapse of seven-story Stark-Lyman building at Cedar Rapids. *il Eng Rec 68:sup 51-2, 598-9 N 22-29 '13*
- Concrete building disaster in Cedar Rapids, Ia. *il Concrete Cem 3:283-5 D '13*
- Concrete floor failure in Detroit. E. H. Owen. *plan Eng Rec 67:165-6 F 8 '13*
- Dangers of concrete construction. *Mach 19:502 Mr '13*
- Failure of a reinforced-concrete building, Detroit, Mich. *il Eng N 69:86-7 Ja 9 '13*
- Failure of groined arches at Baltimore's new water-filtration plant. J. W. Armstrong. *il Eng Rec 68:538-40 N 15 '13*
- Failure of partially constructed groined arch roof, Baltimore. E. B. Whitman. *il plans Eng N 70:1100-4 N 27 '13*
- Failure of the Stark-Lyman building, Cedar Rapids, Iowa. *Eng N 70:1104-6, 1251-5 N 27, D 18 '13*
- Frost damage to Montreal filters. F. E. Field. *il diags Eng Rec 68:566-9 N 22 '13*
- Grain elevator failure at Transcona. *il Eng N 70:944-5 N 6 '13*
- Grain elevator subsidence at Transcona. *il Concrete Cem 3:259-60 D '13*
- Threatened collapse of leaning grain elevator at Winnipeg. *il Eng Rec 68:sup 45-6 N 1 '13*

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- Attractive dwellings near Pittsburgh. *il plans Concrete Cem 1:57-9 D '12*
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- Concrete and plaster houses built on Mojave desert. *il Concrete Cem 3:25 Jl '13*
- Concrete block cottages built complete for \$1500 each. *il plans Concrete Cem 2:137-8 Mr '13*
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- Concrete home of unique design. *il Concrete Cem 2:263-4 Je '13*
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- Double walls and tile columns in residence construction. *il plan Concrete Cem 2:218-20 My '13*
- Fireproof houses on western plains. *il Concrete Cem 2:115-6 Mr '13*
- Garden apartments of California: Irving J. Gill, architect. E. M. Roorbach. *il plan Arch Rec 34:520-30 D '13*
- House built of concrete—to resist fire attack. *il Concrete Cem 2:143-4 Mr '13*
- House of concrete block, attractive as to color and texture. *il plan Concrete Cem 2:297-8 Je '13*
- Poured concrete houses in France. *il Concrete Cem 2:209-12 My '13*

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Reinforced concrete Whitehall tenement building, Providence, R. I. plan Eng Rec 67:158-9 F 8 '13

Steel forms for concrete cottage construction. Concrete Cem 2:23 Ja '13

Suggestion for poured concrete house. il plan Concrete Cem 1:63 D '12

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Three-story tenement built with wall machines. il Concrete Cem 2:13-4 Ja '13

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Concreting the Harlem river subway tunnel. il Eng Rec 68:404 O 11 '13

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Aids to navigation on the Missouri river. F. C. Perkins. il Sci Am S 75:100-1 F 15 '13

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Concrete piles for strengthening foundations. il diags Iron Tr R 53:681-2 O 16 '13

Deep-water piers for the Passaic and Hackensack river bridges. il Eng Rec 68:698-9 D 20 '13

Imperfect concrete piles. F. L. Pruyn. il Eng Rec 67:328 Mr 22 '13

Large concrete pile installation for Youngstown sheet & tube co.'s steel plant. Youngstown, O. il Eng Rec 67:36-7 Ja 11 '13

Protecting piles against teredos and limnoria. O. P. Shelley. il Concrete Cem 2:152 Mr '13

Reinforced-concrete piles on the Chicago, Rock Island & Pacific railway. diags Eng Rec 67:606 My 31 '13

Tests on cast-in-place concrete piles. F. L. Pruyn. plan Eng N 69:592-3 Mr 20 '13

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Portable concrete mixing plants on the Panama canal. Ry & Eng R 53:303 Mr 29 '13

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Portable plant for mixing and distributing concrete. il Eng N 69:162 Ja 23 '13

Portable railway concrete plant: folding tower, mixer and chute mounted on a flat car. il Eng M 45:749-1 Ag '13

Track elevation and portable concreting plant; C. M. & St. P. Ry. plan Eng N 70:26-8 Jl 3 '13

Track elevation at Piqua, Ohio. il diags map Eng Rec 68:517-9 N 15 '13

Winter work in products plants. C. E. Sims. il Concrete Cem 2:9-10 Ja '13

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Color and texture of concrete products. A. Schilling. il Concrete Cem 2:6-8 Ja '13

Concrete products—architectural considerations. il Concrete Cem 3:155-60 O '13

Manufacture of concrete products in Germany. J. Carstanjen, jr. il Concrete Cem 2:187-90 Ap '13

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Concrete slabs in levee construction. E. B. Murray. il Concrete Cem 1:80-2 D '12

Designing concrete slab spans for double-track bridges of Pennsylvania railroad across the Bush and Gunpowder rivers. Eng Rec 68:400 O 11 '13

Reinforced concrete slabs under concentrated loading. A. T. Goldbeck. diags Concrete Cem 3:56-9 Ag '13

Tests of reinforced-concrete slabs under concentrated loading. Eng Rec 68:154-6 Ag 9 '13

Tests of the Norcross and mushroom flat slabs. Eng N 69:1139-40 My 29 '13

Tests vs. theory in reinforced-concrete flat slabs. W. A. Slater; A. C. Arend. Eng N 69:429-30 F 27 '13

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Energy losses in some condensers used in high-frequency circuits. L. W. Austin. U S Bur Stand Bul 9:73-80 Mr 15 '13

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Condensers (gases and vapors)

Ammonia condensers. F. Ophüls. il Power 38: 335-7, 474-6 S 2, 20 '13

Condenser and back pressures. Power 37:826 Jo 10 '13

Condensers (steam)

Air in condensers. H. Fothergill. il Power 38:592-5 O 28 '13

Air in surface condensation. G. A. Orrok. diag Power 38:8-10 Jl 1 '13

Air in surface condensation: discussion of paper by G. A. Orrok. Am Soc M E J 35: 391-16 F '13

Condensers (steam) — Continued.

- Barometric condenser piping. B. S. Nelson. *diag* Power 38:559-60 O 21 '13
- Booth's condenser problem. R. S. Bayard. Power 37:310-1 Mr 4 '13
- Booth's condenser problem. W. E. Dixon; F. Githens. Power 37:427-8 Mr 25 '13
- Caring for condenser apparatus. Power 37:267-8 F 25 '13
- Condenser repairs. J. J. Ramsey. *il* Power 37:641-2 My 6 '13
- Condenser-tube corrosion. *il* Power 38:531-3, 781-3, 817-9 O 14, D 2-9 '13
- Condenser-tube corrosion. B. H. Chester. Power 38:692 N 11 '13
- Condensers, air and circulating pumps. C. A. McAllister. *diags* Int Marine Eng 18: 343-6 Ag '13
- Condensing equipment of Lake Shore plant of Cleveland electric illuminating co. A. D. Williams. *il* plan Power 37:516-7 Ap 15 '13
- Condensing plants for large commercial buildings. W. L. Durand; I. N. Evans. Power 37:227-30 F 18 '13
- Condensing plants for large commercial buildings. I. N. Evans. Power 37:88-9 Ja 21 '13
- Corrosion of condenser tubes. G. D. Pengough and R. M. Jones. Metal Ind n s 11:386-7 S '13
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- Large high vacuum condenser test. J. J. Brown. *il* plan Power 37:278-82 F 25 '13
- Large high-vacuum condenser test. C. G. de Laval. Power 37:756 My 27 '13
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- Marine condensers. Power 37:332-3 Mr 11 '13
- Modern condensing systems. *diags* Ind Eng 13:229-30 My '13
- Modern condensing systems. Power 37:510-2 Ap 8 '13
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- Rees roturbo rotary jet condenser. *plan* Int Marine Eng 18:42 Ja '13
- Removing corroded condenser ferrules. E. M. Davis. *il* Power 38:403-4 S 16 '13
- Surface condensers for Brooklyn Edison company. *il* Elec W 61:317 F 8 '13
- Test of large high-vacuum condenser. *il* plan Ind Eng 13:125-7 Mr '13; Same cond. Elec W 61:421-2 F 22 '13
- Thermometer and mercury-column readings on high-vacuum condensers. C. K. Carpenter. Power 37:681 My 13 '13
- Troublesome condensing system. E. H. Lane. *plan* Power 37:594-5 Ap 29 '13
- See also* Cooling towers; Evaporation; Feed water; Steam engines; Steam plants
- Conductivity, Electric.** *See* Electric conductivity
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- Coney Island**
- Prize design for Coney Island beach reclamation. *plan* Eng N 70:304-5 Ag 14 '13
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- Conference of governors of New England, 1913. Elec Ity J 41:224-5 F 1 '13
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- Connecticut river transmission company**
- Hydroelectric energy for Worcester railway system. *il* map Elec W 62:685-8 O 1 '13
- Connecticut society of civil engineers**
- 29th annual meeting, 1913. Eng N 69:386-7 F 20 '13
- Connecticut state association of master plumbers**
- 23d annual meeting. Hartford, May, 1913. *il* Dom Eng 63:222-4 My 24 '13
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Conservation of resources

- Bill to provide for state water conservation and state control of dams in Pennsylvania. Eng N 69:676-7 Ap 3 '13
- Conservation and commercialism. Eng Rec 67:594 My 31 '13
- Conservation and research: economies secured by scientific investigation. H. T. Kal-mus. Sci Am S 75:114-5 F 22 '13
- Conservation as applied in Alaska. G. L. Sheldon. Eng & Min J 95:484 Mr 1 '13
- Conservation movement. Elec W 61:184-5 Ja 25 '13
- National or state control of natural resources. C. T. Johnson. Eng N 70:1199-1200 D 11 '13
- National or state control of the gifts of nature. Eng N 70:1032-3 N 27 '13
- Railway electrification a conservator of natural resources. Eng Rec 68:686-7 D 20 '13
- Report of committee of Am. railway engineering assn. Ry Age 54:710-1 Mr 21 '13
- Secretary Lane on conservation. Eng N 70:1312-1 D 25 '13
- Secretary Stimson's suggestion as to Niagara Falls. Met & Chem Eng 11:117-8 Mr '13
- See also* Forests and forestry; Mineral lands; Natural resources; Reclamation of land; Water power; also National conservation congress; New York conservation commission
- Consolidated coppermines company**
- Incorporation of Consolidated coppermines co. Eng & Min J 95:1205-6 Je 14 '13
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- Bridges**
- Bridging the Bosphorus and the Golden Horn. H. G. Tyrrell. *map plan* Eng N 70:1020-1 N 20 '13
- Modern engineering in an ancient eastern capital: new pontoon bridge. F. C. Coleman. *il* Sci Am S 75:60-1 Ja 25 '13
- Pontoon bridge over the Golden Horn. F. C. Coleman. *il* Eng N 70:1018-20 N 20 '13
- Constants.** *See* Units
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- Construction camps**
- Ambursen hydraulic construction co. model camp in Missouri. *il* Eng Rec 67:405-6 Ap 12 '13
- Camp Hill View sanitation, Catskill aqueduct. A. W. Tidd. *il* plans Eng N 70:752-9 O 16 '13
- Construction camp at Arrowrock dam. A. B. Mayhew. *il* Eng Rec 68:116-8 Ag 2 '13
- Cost of small frame buildings for a construction camp. Eng & Min J 96:550 S 20 '13
- Keeping the camp contented. Eng Rec 67:394 Ap 12 '13
- Liquor in construction camps. C. E. Fisher. Ry & Eng R 53:205-6 Mr 8 '13
- Night soil incinerating furnace at a contractor's camp. A. W. Tidd. *il* Eng N 69:164-5 Ja 23 '13
- Well equipped boarding camp of twenty-three cars. *il* Ry Age 51:1097-8 My 16 '13
- See also* Mining camps
- Continuation schools.** *See* Evening and continuation schools
- Continuity.** O. Lodge. Sci Am S 76:181-3, 206-8 S 20-27 '13
- Contractors**
- Continuous rail for Chicago street traction: the story of a rush order. *il* Sci Am S 75:197-9 Mr 29 '13
- Contracting economies and administration. W. Sachs. Concrete Cem 3:257-9 D 13
- Contractor, engineer and inspector. F. L. Cranford. Eng Rec 68:700 D 20 '13; Discussion. F. E. Ellis. 68:724 D 27 '13
- Efficiency of labor—a difficult problem for the contractor. Eng Rec 67:510 My 10 '13
- Illinois law for licensing mason contractors. Eng N 70:813 O 23 '13
- Improving electrical service for contractors. Eng Rec 67:539 My 17 '13
- Motor truck in contracting and construction work. R. W. Hutchinson, Jr. *il* Eng M 45:793-816: 46:77-94, 237-49 S-N '13

Contractors *Continued.*

- Problems of the contractor; organizing and executing the construction of a reinforced-concrete industrial building. *Eng Rec* 68: 693-4 D 20 '13
- Psychology and the contractor. *Eng Rec* 68: 254 S 6 '13
- Selection of combination equipment. J. M. Donahue. *Munic Eng* 45:394-5 O '13
- Should fees be charged for the use of plans by contractors? *Eng N* 70:831 O 23 '13
- Unfairness to the contractor. *Eng Rec* 68: 142 Ag 9 '13
- Unfairness to the contractor. G. H. Chase. *Eng Rec* 68:166 Ag 9 '13
- See also* Illinois electrical contractors' association

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- Arbitration clause in contracts. *Eng Rec* 67: 454 Ap 26 '13
- Business methods for the plumber and fitter. W. A. Fink. *Dom Eng* 65:306-7 D 6 '13
- Central-station energy for Chicago railways: terms of contracts between the Commonwealth Edison company and the surface and elevated lines of Chicago. *Elec W* 62:1110-1 N 29 '13
- Compensation claim for keeping cofferdam dry. W. B. King. *Eng Rec* 67:97 Ja 25 '13
- Contract between Great Falls power company and Puget Sound railway. *Elec W* 61:284 F 8 '13
- Contracts for public works. *Eng Rec* 67:148 F 8 '13
- Contracts for purchased power. *Elec Ry J* 42:1178-81 D 6 '13
- Contracts not to re-engage in business. A. L. H. Street. *Iron Age* 92:850-1 O 16 '13
- Court of claims decisions on engineering contracts. W. B. King. *Eng Rec* 67:352 Mr 29 '13
- Discretionary clauses in contracts. W. B. King. *Eng Rec* 68:308 S 13 '13
- Effect of inspection and acceptance upon pavement guaranty. *Munic Eng* 44:363-4 Ap '13
- Future contract prices. A. Del Mar. *Eng M* 46:1-6 O '13
- General principles applicable to public construction contracts. *Eng N* 70:1017 N 20 '13
- Governmental responsibility for delays on contracts. *Eng Rec* 68:62-3 J1 9 '13
- Legal suggestions respecting road contracts. W. L. Bowman. *Eng Rec* 68:408-9 O 11 '13
- New railway power contracts in Chicago. *Elec Ry J* 42:1128-9 N 29 '13
- Power contract for a trunk-line electrification between the Great Falls power company and the Chicago, Milwaukee & Puget Sound railway. *Elec Ry J* 41:280-1 F 15 '13
- Purchased power for the Chicago, Milwaukee & Puget Sound electrification. *Elec Ry J* 41:290 F 15 '13
- Railway construction contracts. *Ry & Eng R* 53:309-11 Mr 29 '13
- Some of the elements of contract work. E. J. Long. *Dom Eng* 65:160-2 N 8 '13
- Uniform general contract forms: report of committee of American railway engineering assn. *Ry Age* 54:620-4 Mr 20 '13
- Waiver of time limit and responsibility for extras. W. B. King. *Eng Rec* 67:48 Ja 11 '13

See also Bridge contracts; Building contracts; Damages; Labor contracts

Contracts, Letting of

- Plan to limit unbalanced bidding on New York city contract work. *Eng N* 69:777-9 Ap 17 '13
- Preparing and letting bridge contracts. *Concrete Cem* 3:121 S 13
- Responsibility of the architect as related to sub-contracts. *Arch Rec* 33:379-80 Ap '13
- Unbalanced bidding. J. P. Snow; A. J. Himes. *Eng N* 69:1013-4 My 15 '13

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- Converter design which facilitates repairs. *Il Iron Tr* 11 52:308-10 Ja 30 '13
- Converter for melting iron and blowing steel. *Il plan Foundry* 41:33-6 Ja '13
- Development of the basic-lined converter for copper mattes. E. P. Mathewson. *Il Am Inst Min E Bul* 78:1933-7 Je '13; Discussion. 83: 2670-82 N '13
- Electric operated copper converters. G. B. Rosenblatt. *Il Eng & Min J* 95:901 My 3 '13
- Equipment for the foundry and pattern shop. *Il Foundry* 41:81-3 F '13
- Great Falls converter practice. *Met & Chem Eng* 11:521-2 S '13
- Great Falls converter practice. A. E. Wheelmer and M. W. Krejci. *Il diags Am Inst Min E Bul* 80:1831-89 Ag '13; Discussion. *Il* 83: 2643-69 N '13
- Making steel in a Stock, oil-fired converter. *Il plan Iron Tr R* 52:97-100 Ja 2 '13
- Monolithic magnetic linings for basic copper converters. A. E. Wheeler and M. W. Krejci. *Am Inst Min E Bul* 84:2769-73 D '13
- Two-piece small type converter. A. F. Blackwood. *Il Iron Age* 91:297-8 Ja 30 '13

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- Conveyor system utilizing gravity. *Il Iron Age* 92:499-500 S 4 '13
- Cutting factory costs with conveyor system. *Il Iron Age* 91:349-53 F 6 '13
- Economical traveler for dismantling a train shed. *Il diags Ry Age* 55:115-6 J1 18 '13
- Efficient foundry sand-handling plant installed in the Hart-Parr co.'s foundry. *Il Foundry* 41:21-6 Ja '13
- Equipment for unloading a special cargo at a German steamship pier. *diags Int Marine Eng* 18:294-5 J1 '13
- Labor-saving conveyors used in handling screw machine products. *Il Iron Age* 92: 275-8 Ag 7 '13
- Monorail system between buildings at Hood rubber co.'s plant, East Watertown, Mass. A. W. Nichols. *Il Eng Rec* 67:463-4 Ap 26 '13
- Moving minerals in thin flat beds. *Il Mines & Min* 33:310-2 Ja '13
- Portable loading and conveying machinery: descriptions of a number of recent German constructions. *diags Ind Eng* 13:381-4 S '13
- Recent improvements in conveying devices. *Il Sci Am* 109:100 N 22 '13
- Transfer of coal to and from ships. *Il Int Marine Eng* 18:390-2 S '13
- Twin Falls-Oakley irrigation project. A. M. Korsmo. *Il plans Eng N* 69:516-21 Mr 13 '13
- See also* Cableways; Coal handling; Electric shovels; Freight handling; Hoisting machinery; Mechanical handling; Mine haulage; Mine hoisting; Ore handling; Rail handling; Telpherage; Trucks

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- Convict labor in road construction. J. H. Pratt. *Eng Rec* 68:701-2 D 20 '13

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- Cooling gas engines in a new way. *Il Sci Am* 109:160 Ag 30 '13
- New method of cooling gas engines. B. Hopkinson. *diags Ind Eng* 13:449-50 O '13

Cooling ponds

- Sharp mill spray cooling pond, New Bedford, Mass. W. O. Rogers. *Il Power* 37:326-8 Mr 11 '13

Cooling towers

- Best vacuum with a cooling tower. P. A. Bancel. *Power* 38:671-2 N 11 '13
- Cooling tower for small refrigerating plant. R. L. Mossman. *plan Power* 37:716 My 27 '13
- Cooling towers for industrial establishments. *Il Sci Am S* 75:220-1 Ap 5 '13
- Cooling towers for the power plant. E. Brown. *plan Power* 38:496-8 O 7 '13

Cooling towers. *Continued.*

Wheeler-Balcke natural draft cooling tower. il plan Iron Age 91:646-7 Mr 13 '13

Wheeler-Balcke natural draft water-cooling tower. plan Eng & Min J 95:1051-2 My 24 '13

Wheeler-Balcke natural-draft cooling tower. Bristol, Conn. plan Ind Eng 13:183-5 Ap '13

Wheeler-Balcke natural draft tower. il plan Power 37:412-3 Mr 25 '13

See also Condensers (steam)

Cooling water

Supply of cooling water for power stations. F. Buch. plans Elec W 61:943-4 My 3 '13

Cooper, Hugh Lincoln

Man who built the Keokuk dam. W. P. Green. por Sci Am 109:366 N 8 '13

Cooper Hewitt lamps. *See* Electric lamps, Mercury vapor**Cooperation**

Co-operative buying for the employees of the Interborough rapid transit company and New York railways company. Elec Ry J 41:219 F 1 '13

Plan for co-operative buying in Philadelphia. Elec Ry J 41:855-6 My 10 '13

Railway co-operative grocery stores in New York. il Elec Ry J 42:65-6 Jl 12 '13

Securing lower purchase prices for employees. Elec Ry J 41:838-9 My 10 '13

Syndicalism or co-operation? J. Douglas. Eng M 44:833-41 Mr '13

See also Benefit societies; Building and loan associations; Trade unions

Cooperation, State and federal

State and federal co-operation in irrigation work in Oregon. E. G. Hopson. Eng Rec 68:685-6 D 20 '13

Cooperation in education

Co-operation in educational effort. Sci Am 108:153 F 15 '13

Cooperative agriculture. *See* Agriculture, Cooperative**Cooperative stores.** *See* Cooperation**Copper**

Annealed copper standard. Am Inst E E Pro 32:2153-5, 2161-2 N '13

Blisters on rolled copper. W. Stahl. Metal Ind n s 11:115 Mr '13

Comparative characteristics of copper minerals. Eng & Min J 95:759 Ap 12 '13

Copper in steel—its influence on corrosion. D. M. Buck. il Iron Tr R 52:973-8 Ap 24 '13

Same. Iron Age 91:331-6 Ap 17 '13; Same cond. Eng M 45:419-21 Ja '13

Copper—its uses in large electrical works. J. L. Jones. Metal Ind n s 11:376-8 S '13

Corrosion of copper. T. A. Eastick. Metal Ind n s 11:524-5 D '13

Disseminated replacement copper deposits. C. W. Botsford. Eng & Min J 95:620-2 Mr 22 '13

Influence of copper in retarding the corrosion of steel plate. Eng N 70:232-3 Jl 31 '13

Influence of copper upon physical properties of steel. G. H. Clevenger and B. Ray. Bibliog il Am Inst Min E Bul 82:2437-75 O '13; Discussion. 84:2336-40 D '13

Metallography of refined copper. E. S. Bardwell. il Am Inst Min E Bul 79:1429-41 Jl '13

Microstructure of raw and manufactured copper. Met & Chem Eng 11:621-2 N '13

New construction at copper smelteries. Eng & Min J 95:335-6 F 8 '13

Rolling of copper. Metal Ind n s 11:205 My '13

Testing engineers discuss copper and alloys. Foundry 41:294-5 Jl '13

See also Brass; Bronze; Copper alloys; Copper founding; Copper industry and trade; Copper metallurgy; Copper ores; Metals

Analysis

Determination of arsenic and antimony in converter and electrolytic copper. E. E. Brownson. Am Inst Min E Bul 80:1489-95 Ag '13

Determination of oxygen in copper and brass. T. West. Metal Ind n s 11:379-80, 511-3 S, D '13

Copper alloys

Approximate melting points of some commercial copper alloys. H. W. Gillett and A. B. Norton. Metal Ind n s 11:514-7 D '13

Copper alloys for motor car service. W. H. Barr. Automobile 28:514-5 F 20 '13

Electro-analysis of the copper alloys. J. G. Fairchild. il Met & Chem Eng 11:380-2 Jl '13

Micro-chemistry of corrosion. C. H. Desch and S. Whyte. Metal Ind n s 11:430-2 O '13

Recent improvements in non-ferrous alloys. C. Vickers. Foundry 41:416-20 O '13

See also German silver

Copper assaying

Electrolytic vs. iodide assay for copper. P. S. Harrison. Eng & Min J 95:283-4 F 1 '13

Recent American progress in the assay of copper-bullion. E. Keller. il Am Inst Min E Bul 80:2093-15 Ag '13; Discussion. 83:2738-9 N '13

Copper-clad steel suit. P. H. W. Smith. Elec W 62:244 Ag 2 '13

Copper founding

Boronized copper. Sci Am S 76:96 Ag 9 '13

Boronized copper. E. Weintraub. Mach 19:879 Jl '13

Commercial casting of sound high-conductivity copper. R. D. Thomson. il Metal Ind n s 11:81-2 F '13

Great Falls converter practice. A. E. Wheeler and M. W. Krefel. il diags Am Inst E Bul 80:1331-89 Ag '13; Discussion. il 83:2643-69 N '13

Improving the quality of copper castings. Ind Eng 13:417 O '13

Copper industry and trade

Amalgamated copper co. annual report for 1912. Eng & Min J 95:1013 My 17 '13

Anaconda copper mining co. report for 1912. Eng & Min J 95:965-7 My 10 '13

Arizona copper co. report for year ended Sept. 30, 1912. Eng & Min J 95:1038 My 24 '13

Chino copper co. report for 1912. map Eng & Min J 95:916-8 My 3 '13

Company reports. Eng & Min J 96:357-8, 597-8 Ag 23, S 27 '13

Copper freight rates. Eng & Min J 95:197 Ja 18 '13

Copper industry in 1912. Eng & Min J 95:55-64 Ja 11 '13

Copper prices, consumption and supply. H. Steele. Eng & Min J 96:1061-4 D 6 '13

Copper production in Alaska. Elec R & W Elec'n 62:40 Ja 4 '13

Copper production of the world. Eng & Min J 95:1066 My 24 '13

Copper trade in 1912. L. M. Atherton. Iron Age 91:86-7 Ja 2 '13

Cost of copper. H. Steele. Eng & Min J 96:251-8 Ag 9 '13

Growth of the world's copper mining industry in the years 1898-1912. J. B. C. Kershaw. Met & Chem Eng 11:617-9 N '13

Miami copper company in 1912. J. P. Chan-ning. Eng & Min J 95:59-60 Ja 11 '13

Miami copper co. report for 1912. Eng & Min J 95:763-4 Ap 12 '13

Phelps, Dodge & co. miscellaneous costs. Eng & Min J 95:1003 My 17 '13

Phelps, Dodge & co. report for 1912. Eng & Min J 95:941-5 My 13 '13

Prices received for 1912 copper. Eng & Min J 95:1014 My 24 '13

Prospects for copper. Eng & Min J 95:193 Ja 18 '13

Quotations for copper. Eng & Min J 96:801-2 O 25 '13

Ray consolidated copper co. report for 1912. Eng & Min J 95:1083-4 My 31 '13

Stock of copper at the end of September. Eng & Min J 96:753 O 18 '13

Two views of the copper trade. Eng & Min J 95:1111-5 My 31 '13

United States copper production, 1912. Eng & Min J 95:676 Mr 29 '13

Copper industry and trade—Continued.

- Utah copper co. report for 1912. Eng & Min J 95:1007-9 My 17 '13
- Copper metallurgy**
- Chemistry of the reduction processes in use at Anaconda, Mont. F. Laist. Am Inst Min E Bul 73:133-50 Ja '13
- Concentration and reverberatory smelting of a second-class copper ore. F. W. Traphagen. Met & Chem Eng 11:497-9 S '13
- Concentration of slimes at Anaconda, Mont. R. Hayden. Il diags Am Inst Min E Bul 80:1143-67 Ag '13; Discussion. 83:2740-1 N '13
- Constitution of copper slags. Eng & Min J 95:460-3 Mr 1 '13
- Control of noxious fumes: Hestlewood method involving new principles in copper smelting. A. H. Martin. Eng M 45:901-2 S '13
- Copper deoxidation by means of magnesium. F. Hüser. Il Met & Chem Eng 11:518-20 S '13
- Copper leaching. Eng & Min J 96:962-3 N 22 '13
- Copper smelting at Bogoslawsk, Russia. R. Davey. Eng & Min J 95:605-6 Mr 22 '13
- Copper smelting at Chrome, N. Y. J. W. James. Eng & Min J 95:1207 Je 11 '13
- Copper smelting operations of the Santa Fé gold and copper mining co., San Pedro, New Mex. C. T. Enrich. Il Met & Chem Eng 11:327-9 Je '13
- Determination of gases in smelter flues; and Notes on the determination of dust losses at Washoe reduction works, Anaconda. E. M. Dunn. Il Am Inst Min E Bul 80:2051-92 Ag '13
- Development of the basic-lined converter for copper matte. E. P. Mathewson. Il Am Inst Min E Bul 78:1033-7 Je '13; Discussion. 83:2670-82 N '13
- Development of the reverberatory furnace for smelting copper-ores. E. P. Mathewson. Il diags Am Inst Min E Bul 73:113-37 Ja '13
- Developments in the metallurgy of copper. Met & Chem Eng 11:5-6 Ja '13
- Distillation of impurities from copper. Foundry 41:28-9 Ja '13
- Electrolytic refining of copper precipitate anodes. W. F. Burns. Am Inst Min E Bul 79:1163-7 Jl '13
- Experiments with an oil-burning shaft furnace. A. L. Waters. Il Eng & Min J 96:203-5 Ag 2 '13
- Flotation vs. table concentration for copper ores. Eng & Min J 95:328 F S '13
- Great Falls converter practice. A. E. Wheeler and M. W. Knecht. Il diags Am Inst Min E Bul 80:1831-80 Ag '13; Discussion. Il 83:2643-69 N '13
- Great Falls electrolytic copper refinery. W. T. Burns. Il Am Inst Min E Bul 80:2011-49 Ag '13; Same. Met & Chem Eng 11:509-18 S '13
- Great Falls electrolytic copper refinery. H. A. B. Motherwell; Met & Chem Eng 11:669-70 D '13
- Great Falls system of concentration. A. E. Wiggin. diag Am Inst Min E Bul 80:1801-30 Ag '13
- Historical note on copper smelting. Eng & Min J 96:359-61 Ag 23 '13
- Increasing the efficiency of Macdonnell roasters at the Great Falls smelter of the Anaconda copper mining co. F. R. Corwin and S. S. Rodgers. diags Am Inst Min E Bul 73:1389-1428 Jl '13
- Kedabeg copper-smelting works, Transcaucasia. diags Eng & Min J 96:15-9 Jl 5 '13
- Leaching of copper ores. Eng & Min J 96:651 O 4 '13
- Leaching Shannon copper ores. F. S. Schimierka. Eng & Min J 96:1107-10 D 13 '13
- Metallurgy of copper in 1912. A. L. Walker. Eng & Min J 95:103-4 Ja 11 '13
- Metallurgy of Sudbury copper-nickel ores. Met & Chem Eng 11:629-31 N '13
- Monolithic magnetite linings for basic copper converters. A. E. Wheeler and M. W. Knecht. Am Inst Min E Bul 84:2763-73 D '13
- New smelter of United Verde copper company, Clarkdale, Ariz. R. H. Vail. Il plan diags Eng & Min J 96:287-92, 341-6 Ag 16-23 '13
- Precipitation of copper from the mine waters of the Butte district. J. C. Forbes. Il Am Inst Min E Bul 79:1267-83 Jl '13
- Production of copper and nickel in the electric furnace. Met & Chem Eng 11:22-3 Ja '13
- Recent Cottrell electric precipitation results. L. Bradley. Eng & Min J 96:247-8 Ag 9 '13
- Slater lixiviation process. H. B. Slater. Eng & Min J 96:1133-4 D 13 '13
- Smelting of copper ores in the electric furnace. D. A. Lyon and R. M. Keeney. diags Am Inst Min E Bul 80:2117-19 Ag '13; Same cond. Met & Chem Eng 11:522-7 S '13
- Treatment of copper-lead mattes. Eng & Min J 95:902 My 3 '13
- Copper mines and mining**
- Braden copper co., Rancagua, Chile, hydro-electric development. C. G. Newton. Il diags Eng N 69:1041-6 My 22 '13
- Copper at Chuquibambuta, Chile. M. M. Thompson and R. A. McGovern. Il Eng & Min J 95:171-3 Ja 18 '13
- Copper El Dorado in mid-Africa—the Katanga. C. F. Talman. Sci Am 108:450 My 17 '13
- Copper in Arizona. J. Douglas. map Eng & Min J 95:60-1 Ja 11 '13
- Cost of copper. H. Steele. Eng & Min J 96:251-8 Ag 9 '13
- Early copper mining and smelting in Arizona. G. A. Mardin. Il Eng & Min J 95:881 My 3 '13
- Flotation plant at Kyloe copper mines, N. L. H. H. Smith. plans Met & Chem Eng 11:131-6 Mr '13
- History of the Copper Queen mines. Eng & Min J 95:325-39 Mr 8 '13
- Lake Superior copper mines. Il Eng & Min J 96:311-3 Ag 16 '13
- Lake Superior district in 1912. C. L. C. Fichtel. Eng & Min J 95:63-4 Ja 11 '13
- Magistral district, Jalisco, Mexico. E. Ordoñez. Eng & Min J 96:491-2 S 13 '13
- Mining in Butte in 1912. B. B. Thayer. map Eng & Min J 95:61-2 Ja 11 '13
- New smelter of United Verde copper company, Clarkdale, Ariz. R. H. Vail. Il plan diags Eng & Min J 96:287-92, 341-6 Ag 16-23 '13
- Ore deposits at Butte, Mont. R. H. Sales. diags Am Inst Min E Bul 80:1523-1626 Ag '13
- Copper ores**
- Investigation of copper enrichment. L. C. Graton. Eng & Min J 96:885-7 N 8 '13
- Sulphide ores of copper: some results of microscopic study. L. C. Graton. Il Am Inst Min E Bul 77:741-98 My '13; Discussion. 77:798-811 My '13
- See also Copper metallurgy; Copper mines and mining
- Copper plating**
- Applying chemistry in the plating room. E. P. Later. Foundry 41:187-9 My '13
- Brass and copper plating of the future. E. G. Lovering. Il Metal Ind n s 11:173 Ap '13
- Copper-plating to size. Foundry 41:190 My '13
- Electro copper plating of galvanized iron chain. C. H. Proctor. Metal Ind n s 11:84 F '13
- Copper range consolidated co., Houghton, Mich.**
- Copper Range consolidated. Eng & Min J 96:357-8 Ag 23 '13
- Copper smelting. See Copper metallurgy
- Copyright**
- Goodwill, patents, trade-marks, copyrights and franchises. P. J. Esquerré. J Account 15:30-1 Ja '13
- Core shops.** See Foundry management
- Cores.** See Foundry practice
- Cork**
- Commercial importance of cork bark. A. J. Clansay. Il Sci Am S 75:344-5 My 31 '13
- Corkscrews**
- Some old cork extractors. diags Sci Am 109:382 N 15 '13

- Corn**
Corn and its future. *Am Ind* 14:29 O '13
- Corn cribs**
Special concrete block for corn cribs. *il Concrete Cem* 2:264-5 Je '13
- Corona (electricity)**
Electric strength of air. J. B. Whitehead and T. T. Fitch. *Bibliog Am Inst E E Pro* 32:1316-33 Je '13; Discussion. 32:2300-15 D '13
Law of corona and dielectric strength of air. F. W. Peek, jr. *Am Inst E E Pro* 32:1336-55 Je '13; Discussion. 32:2300-15 D '13
Oscillograph study of corona. E. Bennett. *il Am Inst E E Pro* 32:1472-91 Je '13; Discussion. 32:2300-15 D '13
Positive and negative corona and electrical precipitation. W. W. Strong. *Am Inst E E Pro* 32:1304-11 Je '13; Discussion. 32:2300-15 D '13
Specifications for testing high-voltage insulators. *Elec W* 62:83-5 Jl '12 '13
- Corporation law**
Appeal important to all manufacturers, Sioux remedy co. vs. Cope. *Am Ind* 13:16-7 F '13
Assessments on stock of corporations organized under the laws of California. *J Account* 15:117-21 F '13
Decision of the Supreme court on corporate liability. *Ry & Eng R* 53:106 My 3 '13
Interest of minority stockholders in public utilities to be established. *Elec W* 61:924 My 3 '13
Regulation of steam heating corporations in New York. *Heat & Ven* 10:45-7 O '13
See also Franchises; Income tax; Public service corporations; Railroad law; Sherman anti-trust law
- Corporation schools**
Apprenticeship on the Illinois Central. *Am Eng* 87:249-52 My '13
Carnegie steel company's training school. *Iron Age* 91:1298 My 29 '13
National association of corporation schools. *Elec Ry J* 41:183 F 1 '13
Organization of National assn. of corporation schools. *Iron Age* 91:318-9 Ja 30 '13
Pennsylvania railroad company apprentice schools. J. P. Jackson and J. W. L. Hale. *Am Inst E E Pro* 32:1433-9 Je '13
Public trade schools or shop schools—which? P. Kreuzpointer. *Am Mach* 38:831-2 My 15 '13
Training of employees. *Eng Rec* 67:115 F 1 '13
Woods apprentice industrial school, Alliance, Ohio. *Mach* 20:315 D '13
See also National association of corporation schools
- Corporations**
Efficiency of large corporations: proposed investigation by Dept. of commerce. *Iron Age* 92:1393 D 18 '13
See also Building and loan associations; Corporation law; Government regulation of industry; Holding companies; Public service corporations
- Accounting**
See Accounting
- By-laws**
Adoption of by-laws. T. Conyngton. *J Account* 15:96-105 F '13
Enforcement of by-laws. T. Conyngton. *J Account* 15:157-65 Mr '13
Nature of by-laws. T. Conyngton. *J Account* 15:10-20 Ja '13
- Finance**
Mistaken popular notions concerning public service corporations. F. Strauss. *Elec Ry J* 41:190-2 F 1 '13
- Taxation**
New York State franchise tax on corporations. J. Young. *J Account* 16:337-19 N '13
No corporation tax for leased companies. *Elec Ry J* 41:878 My 17 '13
Tax on mining income. *Eng & Min J* 96: 655-6 O 4 '13
See also Income tax; Mine taxation
- Corporations. Public service.** *See* Public service corporations
- Corrosion, Electrolytic.** *See* Electrolytic corrosion
- Corrosion and anti-corrosives**
Air as a stimulator of corrosion in refrigerating systems. M. B. Smith. *Eng N* 69:1002-3 My 15 '13
Condenser-tube corrosion. B. H. Chester. *Power* 38:692 N 11 '13
Condenser-tube corrosion. *il Power* 38:531-3, 781-3, 817-9 O 11, D 2-9 '13
Copper-bearing steel and corrosion. *Iron Age* 92:572-3 S 11 '13
Copper in steel—its influence on corrosion. D. M. Buck. *il Iron Tr R* 52:973-8 Ap 24 '13; Same. *Iron Age* 91:931-6 Ap 17 '13; Same cond. *Eng M* 45:419-21 Je '13
Corrosion in refrigerating systems. M. B. Smith. *Power* 37:54-5; 38:268-70 Ja 14, Ag 19 '13
Corrosion of aluminum. G. H. Bailey. *Metal Ind n s* 11:204-5, 260-1 My-Je '13
Corrosion of cast iron reviewed. R. H. Gaines. *Iron Age* 91:1358-9 Je 5 '13
Corrosion of condenser tubes. G. D. Bengough and R. M. Jones. *Metal Ind n s* 11:386-7 S '13
Corrosion of copper. T. A. Eastick. *Metal Ind n s* 11:524-5 D '13
Corrosion of distilling condenser tubes. *Met & Chem Eng* 11:287-8 My '13
Corrosion of iron and overvoltage. *Met & Chem Eng* 11:289-90 My '13
Corrosion of iron and steel. W. H. Walker. *Iron Age* 91:1205 My 15 '13; Same. *Sci Am S* 76:51-2 Jl 26 '13
Corrosion of lead. R. H. Gaines. *Eng Rec* 67:685-6 Je 21 '13
Corrosion of pipe in refrigerating systems. F. N. Speller. *bibliog il Iron Age* 92:1330-1 D 11 '13
Corrosion of pipes by raw and treated waters. F. E. Hale. *Munic Eng* 45:334-9 O '13
Corrosion of spikes in ties treated with zinc-chloride. *Eng N* 69:270 F 6 '13
Corrosion report before the British institute of metals. *Met & Chem Eng* 11:544 O '13
Corrosions in steam boilers. *Am Soc M E J* 35:185-6 Ja '13
Decarbonation of public water supplies to remove corrosive properties. G. C. Whipple. *Eng Rec* 68:213-4 Ag 23 '13
Design of hot water supply systems to minimize corrosion. F. N. Speller. *plan Eng N* 69:294-5 F 13 '13
Disease of old leaden art objects. J. Boyer. *il Sci Am* 109:382 N 15 '13
Electrolytic method of preventing corrosion. *Eng Rec* 68:215 Ag 23 '13
Electrolytic theory of the corrosion of iron. B. Lambert. *Met & Chem Eng* 11:272-4 My '13
Further studies in corrosion. *Power* 38:843-4 D 16 '13
Influence of copper in retarding the corrosion of steel plate. *Eng N* 70:232-3 Jl 31 '13
Influence of silicon on corrosion of cast iron. J. N. Friend and C. W. Marshall. *Foundry* 41:307-8 Ag '13
Micro-chemistry of corrosion. C. H. Desch and S. Whyte. *Metal Ind n s* 11:430-2 O '13
Preservation of metals for marine work. F. Lyon. *Int Marine Eng* 18:151-4 Ap '13
Preventing corrosion of iron and steel. *Sci Am* 109:158 Ag 30 '13
Prevention of the corrosion of iron water mains. W. F. Montfort. *Eng N* 70:570-1 S 18 '13
Propeller shafts—how to preserve and how to protect them. *Int Marine Eng* 18:264 Je '13
Protection of steel from corrosion. H. Williams. *il Eng M* 45:183-95 My '13
Rusting of iron. *Sci Am* 108:67 Ja 18 '13
Soda-ash for boiler waters. C. H. Bromley. *Power* 38:412-3 S 16 '13
Steel and its corrosion. *Eng M* 45:569-70 Jl '13
Steel, wrought iron and corrosion. G. Schuhmann. *il Iron Age* 92:1190-3 N 20 '13
See also Metal protection; Paint; Painting; Structural; Waterproofing
- Corrugated ships.** *See* Naval architecture

- Corrugation** of electric railway rails. A. Busse. Eng M 41:254-6 N '12
- Corundum**
Assay for corundum by mechanical analysis. W. S. Hutchinson. Am Inst Min E Bul 78:1039-10 Je '13
- Cost**
Decreased cost month. Iron Age 91:1187-8 My '13
What is the selling price? R. H. Pflug-Felder. Dom Eng 65:15-6 O '13
See also Prices
- Cost accounting**
Accounting as a basis for and a measure of efficiency in business. C. H. Nau. J Account 15:143-56 Mr '13
Analysis of costs in a refrigerating plant. Elec W 61:148-9 Ja 18 '13
Axioms concerning manufacturing costs: discussion of paper by H. R. Towne. Am Soc M E J 35:655-62 Ap '13
Building a cost system. B. A. Franklin. Eng M 46:356-64 D '13
Cause of the small profit in the plumbing business. E. C. Cole. Dom Eng 63:396-7 Je 14 '13
Central-station unit-cost accounting. Elec W 62:1271-2 D 29 '13
Cheap, efficient cost system. Iron Age 91:62 Ja 2 '13
Construction by day labor in Minneapolis: methods and costs of concrete vaulting over city reservoir. W. N. Jones. J Eng Rec 67:424-6 Ap 19 '13
Continuous cost keeping system maintained by Automatic transportation co., Buffalo. J Iron Age 91:88-90 Ja 2 '13
Cost and method. B. Daniels. *See* monthly numbers of the Inland printer
Cost estimating on screw machine products. J Iron Tr R 52:309-15 Ap 17 '13
Cost keeping for reinforced-concrete buildings. W. P. Anderson. Eng M 45:34-49 Ap '13
Cost-keeping in a pump factory. S. Dean. Iron Age 91:814-8 Ap 3 '13
Cost-keeping system for warehouse trucks. Automobile 28:942-3 My 1 '13
Cost systematizing. A. Hiller. J Account 16: 435-9 D '13
Cost systems. M. McCune. Metal Ind n s 11: 299-300 J1 '13
Daily time and material report systems of railroads. Ry Age 55:505-8 S 19 '13
Distribution of shop expenses. J. A. Singler. Inland Ptr 51:567-9 J1 '13
Easily-applied, common sense cost system; the method of distributing direct and indirect foundry costs. O. O. Brace. J Foundry 41:43-6, 97-100, 152-7, 207-8 F-MY '13
Economical foundry cost-keeping methods. E. W. Riker. Foundry 41:283-5 J1 '13
Fallacy of including interest and rent as part of manufacturing cost. A. L. Dickinson. J Account 16:89-98 Ag '13
Improved cost summary sheet. E. Gorman. Inland Ptr 51:230-1 My '13
Interest a factor of costs? E. C. Gough. J Account 15:473-7 Je '13
Keeping concrete costs. M. C. Tuttle. tables Eng Rec 67:9-11 Ja 4 '13
Keeping costs. Eng Rec 67:3 Ja 4 '13
Keeping track of tires: sales records and other forms. Automobile 28:1391-5 Je 26 '13
Klaxon factory system seen in detail. Automobile 28:1066-9 My 22 '13
Locomotive truck system. Automobile 28: 1030-3 My 15 '13
Making the cost system work smoothly. Inland Ptr 52:120-1 D '13
Manufacturing burden obtained monthly; system of the Gilbert & Barker mfg. co., Springfield, Mass. Iron Age 91:356-9 F 6 '13
Mining cost accounts of the Anaconda copper mining co. H. T. Van Ellis. Am Inst Min E Bul 78:1047-54 Je '13
Necessity of knowing what things cost. J. R. Godfrey. Am Mach 38:784 My 8 '13
Newspaper and advertising costs. Inland Ptr 52:273-7 N '13
Overhead cost in the plumbing business. R. H. Pflug-Felder. Dom Eng 61:332-3 S 29 '13
Overhead expense distribution; with discussion. R. R. Keely. Am Soc M E J 35:383-96 Je '13; Same. Ind Eng 13:301-1 J1 '13; Same. Iron Tr R 53:337-8 Ag 21 '13; Same cond. Iron Age 92:298-9 Ag 7 '13
Problem in the distribution of expense burden. H. C. Bentley. J Account 16:25-50, 175-209 J1, S '13
Retaining fee for high-priced workmen. Ind Eng 13:181 N '13
Scientific cost-keeping system for reinforced concrete. J. S. Nicholl. Eng M 44:511-25 Ja '13
Shop costs of boiler and plate work. W. C. Connelly. Iron Age 92:611-5 S 18 '13
Simple cost-finding method for photoengravers. Inland Ptr 51:587-8 J1 '13
Simple system for procuring cost data. Iron Age 91:757-9 Mr 27 '13
Some observations on costs by a country printer. C. L. Hobart. Inland Ptr 50:539-40 Ja '13
Standardization of method for determining and comparing power costs in steam plants. H. G. Stott and W. S. Gorsuch. Am Inst E E Pro 32:1098-1131 My '13
System for keeping costs in a foundry. E. A. Boyce. Iron Age 91:591-5 Mr 6 '13
Treatment of interest on manufacturing investment; symposium. J Account 15:131-14, 329-35, 427-32, 16:22-4 Ap-J1 '13
Uniform cost methods in the foundry industry. C. E. Knoepfel. Foundry 41: 272-4 J1 '13
Value of cost keeping. Power 37:827-8 Je 10 '13
What should the selling price be? R. H. Pflug-Felder. J Dom Eng 65:338-40 D 13 '13
Where costs end and profits begin. F. S. Prior. Dom Eng 61:364-7 S 27 '13
Work order system adaptable to public utilities. G. W. Kalweit. Elec Ry J 41:113-5 Ja 18 '13
See also Account analysis; Accounting; Depreciation
- Cost of living**
Comparative measurements of the changing cost of living. J. P. Norton. Sci Am S 75: 348-51 My 31 '13
Cost of high living. Ind Eng 13:218-9 My '13
Good roads and the cost of living. W. W. Finley. Concrete Cem 2:17-8 Ja '13
Philadelphia—result of inquiry into cost of living. Elec Ry J 41:510 Mr 15 '13
Science and the cost of living. Sci Am 108: 486 My 31 '13
See also Food—Prices
- Costa Rica**
Boundaries
Survey of the boundary between Costa Rica and Panama. Eng Rec 67:361 Mr 29 '13
- Costumes**
See also Automobile costumes
- Cottages**
Concrete block cottages built complete for \$1500 each. J1 plans Concrete Cem 2:137-8 Mr '13
Cottage built of white face block at Creston, Ia. J1 plan Concrete Cem 2:238-9 Je '13
Garden apartments of California: Irving J. Gill, architect. E. M. Koobach. J1 plan Arch Rec 34:520-30 D '13
Pair of cottages at Villa Nova, Pa., Aymar Embury, H. architect. J1 Arch Rec 34:334-6 O '13
Three cottages and a studio: recent work of Arthur T. Renick. A. T. Covell. J1 Arch Rec 34:306-17 O '13
- Cotton**
Fireproof clothing: a process for rendering cotton cloth permanently fire-resisting. W. H. Perkin. Eng M 41:761-3 F '13
Improvement in bailing cotton. Am Ind 14:28 Ag '13
See also Textile industry and fabrics
- Cotton machinery**
New preparatory machinery for use in cotton mills. J1 Am Ind 13:31 Ap '13

- Cotton manufacturers.** See National association of cotton manufacturers
- Cotton mills**
Cotton mill accounts. J. Hunter. J Account 16:110-9 Ag '13
Design and construction of the modern cotton mill. F. W. Reynolds. Am Soc M E J 35:1029-33 Je '13; Same. Ind Eng 13:305-6 Jl '13
Modern methods of lighting in cotton mills. A. L. Pearson. Am Soc M E J 35:1033-6 Je '13; Same. Ind Eng 13:306-7 Jl '13
See also Factories
- Cotton storage shed of economical design.** E. S. Pennebaker, jr. il Eng N 69:26-7 Ja 2 '13
- Cotton-ties**
Cotton-tie scarcity. Iron Age 92:1006-7 O 30 '13
- Cough lozenges**
Safety-match cough lozenges. J. Phin. Sci Am 108:435 My 10 '13
- Counterbalance weights**
Design of counterbalance weights. C. E. Bronson. Ry Age (Mech ed) 87:529-39 O '13
- Counting**
Leak for factory profits: how money is lost in counting. Ind Eng 13:458-60 N '13
System of tallying truck loads. E. Giles. diags Power 38:856 D 16 '13
- Country homes**
Studio-home of Frank Lloyd Wright; pictures. Arch Rec 33:45-54 Ja '13
- Country houses**
Country house in California. H. D. Croly. il Arch Rec 34:483-519 D '13
Country house with an idea: the Russell residence at Greenwich, Conn., Frank Eaton Newman, architect. C. M. Price. il Arch Rec 34:292-301 O '13
Element of the picturesque: a country house at Great Neck, L. I., Wilson Eyre and McIlvaine, architects. il Arch Rec 34:302-5 O '13
Evolution of domestic plans. C. E. Schermerhorn. il plans Arch & Bldg 45:221-69 Je '13
Fire protection of the country house. E. O. Torbohm. Arch & Bldg 45:270-4 Je '13
Recent work of Howard Shaw. H. D. Croly; C. M. Price. il Arch Rec 33:284-331 Ap '13
See also Architecture, Domestic; Bungalows; Country homes
- County farm bureaus**
Success of the county agriculturist plan. C. M. Carroll. Sci Am 108:124 F 1 '13
- County surveyors**
County surveyor—engineer. J. W. Mavity. Eng N 70:1189 D 11 '13
- Couplings**
Boring a large compression coupling. A. H. Myers. diag Mach 19:801-2 Je '13
Magneto couplings for 1913. diags Automobile 28:900-3 Ap 24 '13
New flexible power transmission coupling. il Iron Age 91:599 Mr 6 '13
Use of leather for universal coupling. Automobile 28:594 Mr 6 '13
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- Court houses**
Court house award. il Arch Rec 33:469-70 My '13
New York county court house design. il Eng Rec 67:161 Ap 26 '13
- Court of claims.** See United States. Court of claims
- Courtesy**
Courtesy as an asset in the plumbing business. F. W. Barclay. Dom Eng 63:460 Je 28 '13
- Cranes, derricks, etc.**
Building with traveling tower-cranes. il plan Eng N 70:814-5 O 23 '13
Chicago elevated railway new track and roadway derrick car. il Elec Ry J 41:115 Ja 18 '13
Clearances for electric cranes. W. L. Tryon. diag Foundry 41:508a N '13
Clearances for hand power cranes. W. L. Tryon. diag Foundry 41:418a O '13
Compensating quadrant crane. H. W. Broady. il diag Int Marine Eng 18:305-9 Jl '13; Iron Age 92:10-1 Jl 3 '13
Convertible crane and pile driver. C., B. & Q. R. R. il Ry & Eng R 53:743 Ag 2 '13
Crane failures and their causes. Ind Eng 13:234-5 My '13
Derricks for erection of steel work; from address by F. Tench. Eng Rec 67:278 Mr 8 '13
Design of overhead traveling cranes. Ind Eng 13:189-91 Ap '13
Dynamic braking hoist controller and its application to mill cranes. H. F. Stratton. il Iron Tr R 52:85-93 Ja 2 '13
50-ton locomotive crane. il Eng N 69:675 Ap 3 '13
Floating cranes for Panama. il plan Eng Rec 67:720-1 Je 28 '13
Floating cranes for the permanent equipment of the Panama canal. il Eng N 70:118-20 Jl 17 '13
Floating revolving cranes for Panama. il Am Mach 38:796-7 My 8 '13
German cranes for Panama. il Iron Age 91:1170 My 15 '13
Large locomotive jib crane. il Iron Tr R 52:741 Mr 27 '13; il Ind Eng 13:207 My '13
Large steel derrick for government work. il Eng Rec 67:240 Mr 1 '13
Locomotive cranes in track work. W. E. Davin. Ry & Eng R 53:618-9 Je 28 '13
Safety maxims for operating traveling cranes. Ind Eng 13:426 O '13
Shipbuilding berth and 250-ton wharf crane at the Blohm & Voss shipyard. il Int Marine Eng 18:438-9 O '13
Shop cranes—their design and construction. F. W. Suffield. Mach 19:943-5 Ag '13
Steel guyed derricks for building erection. plans Eng N 70:1028-30 N 20 '13
Stresses in an A-frame for a crane runway: analysis of primary stresses and discussion of stresses in lattice bars. H. Gwinner. diag Mach 19:37-8 S '12
See also Cars (derrick); Hoisting machinery
- Crank cases**
Drilling a crankcase in seven minutes. il Automobile 29:232 Ag 7 '13
Molding large crank cases. il Foundry 41:151 Ap '13
Stearns-Knight crankcases milling and drilling il Automobile 29:279 Ag 14 '13
- Crank shafts**
Analysis of crankshaft stresses. K. W. Najder. Mach 19:866-8 Jl '13
Centering drop-forged crankshafts. diags Mach 19:50 S '12
Design of a crank shaft. E. M. Bragg. Int Marine Eng 18:35-6 Ja '13
Loose dowel pin in crank shaft. Int Marine Eng 18:174 Ap '13
- Crankpins**
Fitting crankpins in the backwoods. W. E. Stickney. diag Power 37:789-90 Je 3 '13
Putting crankpin in 5000-horsepower engine. W. J. Maxwell. Power 37:233 F 18 '13
Putting crankpins in large engines. J. N. Lucas. il Power 37:625 My 6 '13
Three point micrometer and its use. il diag Mach 19:588 My '13
- Crawfish**
Crayfish. R. C. Osburn. il Sci Am S 75:188-90 Mr 22 '13
- Crawfordsville, Indiana**
Successful municipal lighting plant. il plan Munic Eng 44:80-8 F '13
- Crayfish.** See Crawfish
- Credit**
Co-operation between bankers and accountants. J Account 16:51-3 Jl '13
Credits and collections discussed by electrical business men. Elec W 62:1046 N 22 '13
Fallibility of unverified financial statements. R. H. Montgomery. J Account 16:1-10 Jl '13

Credit—Continued.

Plumbers' credit information bureau. Dom Eng 62:241-6 Mr 1 '13

Crematories

Detroit crematory using electric blower. il Elec W 62:1215-6 D 13 '13

Creosote

Comparison of zinc chloride with coal-tar creosote for preserving cross-ties. H. F. Weiss. Elec Ry J 41:151-3 Ja 25 '13; Same. Eng Rec 67:109-10 Ja 25 '13; Same. Ry & Eng R 53:818 Ja 25 '13; Same. Ry Age 54:165-7 Ja 21 '13

Effect of initial air pressure on penetration of creosote. R. S. Belcher. Eng Rec 67:299 Mr 15 '13

Effect upon absorption and penetration of mixing tar with creosote. F. M. Bond. Eng Rec 67:168 Ja 25 '13; Same. Ry Age 54:171-2 Ja 24 '13

European creosote specifications for paving block for city streets. E. A. Sterling. Eng Rec 67:495-6 My 3 '13

Production and supply of coal-tar creosote. Eng Rec 67:326 Mr 22 '13

Production and supply of coal tar creosote. E. A. Sterling. Ry Age 54:164-5 Ja 24 '13

Creosoted wood. See Wood preservation

Creosoted wood blocks for floors. E. A. Sterling. Eng M 44:276-8 N '12

Cripple Creek, Colorado

Cripple Creek in the early days. G. L. Sheldon. Eng & Min J 95:220-1 Ja 25 '13

Cyanidation at Cripple Creek, Colo. H. A. Megraw. il Eng & Min J 95:313-7 F 8 '13

Crops

Condition of crops. Ry & Eng R 53:467 My 17 '13

Our record-breaking crop for 1912. Sci Am S 75:18-9 Ja 11 '13

See also Agriculture

Cross-sections

Cross-sections and symbols. diags Am Mach 38:775-8, 791 My 8 '13

Discussion on report of the committee on standard cross-sections and symbols. il Am Soc M E J 35:18-27 Ap '13

Cross-ties. See Railroad ties

Crossings, Grade. See Grade crossings

Crossings, Railroad. See Grade crossings

Crowds

Kinetic effects of crowds: the forces due to movements of live load. C. J. Tilden. il Sci Am S 76:172-5 S 13 '13

Crucible steel company of America

Annual report for fiscal year ended Aug. 31, 1913. Iron Age 92:933 O 23 '13

Crucibles

Color of crucibles. J. Bartley. Metal Ind n s 11:246 Je '13

Crucible and furnace relationship. J. Bartley. Metal Ind n s 11:166-7 Ap '13

Magnesite crucibles. D. M. Liddell. Eng & Min J 96:503 S 13 '13

See also Assaying; Foundry practice, Steel metallurgy

Cruisers. See Warships

Crushed stone

Crushing plant of Natomas consolidated. R. H. Vail. il plan Eng & Min J 96:481-6 S 13 '13

Crushing

Crushing plant of Natomas consolidated. R. H. Vail. il plan Eng & Min J 96:481-6 S 13 '13

Crushing-surface diagram. A. O. Gates. Eng & Min J 95:1039-41 My 24 '13

See also Gold milling

Crushing machinery

Baltic regrinding plant, Redridge, Mich. A. H. Sawyer. diags Eng & Min J 95:521-2 Mr 8 '13

Changing a tube into a cone mill. il Eng & Min J 96:977 N 22 '13

Corrugated roll shells. H. C. Holtzoff. Eng & Min J 95:1302 Je 28 '13

Crushing Tonopah (Nev.) ores. A. R. Parsons. Eng & Min J 95:1119 My 31 '13

Grinding ores for cyanidation. H. A. Megraw. Eng & Min J 95:821-1, 917-21 N 1, 15 '13

Hardinge conical mill. H. W. Hardinge. il diags Am Inst Min E Bul 75:153-68 Mr '13

Hardinge mill. Eng & Min J 95:663 Mr 29 '13

Hardinge mills vs. Chilean mills. R. Franke. Am Inst Min E Bul 79:1201-8 Jl '13; Same cond. Eng & Min J 96:493-4 S 13 '13; Discussion. Am Inst Min E Bul 83:2702-8 N '13

Ore crushing. H. W. Hardinge. diags Eng M 45:598-601 Jl '13

Pebble lining for Hardinge mills. D. Cole. Eng & Min J 96:927 N 15 '13

Requirements of small cyanide mills. A. Del Mar. il Eng & Min J 96:769-71 O 25 '13

Special mixing and grinding machinery. il Met & Chem Eng 11:111 F '13

Stone crushing and screening. Fairmount, Ill. K. E. Casparis. il Eng N 69:112-6 Ja 16 '13

See also Grinding pans

Testing

Crushing-surface diagram. A. O. Gates. Eng & Min J 95:1039-41 My 24 '13

Crystallography

Wittorff's iron-carbon equilibrium diagram. E. Stoughton. il Am Inst Min E Bul 74:227-37 F '13

Cuba**Industries and resources**

Cuban iron-ore reserves. D. Whitaker. Eng M 46:253-4 N '13

Vast ore deposits of Cuba. H. Hale. Sci Am 109:142 Ag 23 '13

Cube root

Cube and fifth roots by mental arithmetic. A. J. Lotka. Sci Am S 76:194-5 S 27 '13

Culm

Economic combustion of low grade or waste fuels. D. M. Myers. Eng M 45:369-6 My '13

Culverts

Bridges and culverts for country roads in Wisconsin. A. R. Hirst. Eng N 70:729-30 O 9 '13; Same cond. Eng Rec 68:378 O 4 '13

Data for use in designing culverts and short-span bridges. C. H. Moorefield. il U S Pub Roads Bul 45:7-39 '13

Diagram for area of railway culvert openings. T. J. Wright, jr. Eng N 69:173-4 Ja 23 '13

Large reinforced-concrete culvert, Newcastle, Eng. diags Eng N 70: 339 Ag 21 '13

Rational culvert formula. W. W. Horner. Eng N 69:212-3 My 1 '13

Waterman avenue culvert, over River des Peres, St. Louis, Mo. C. W. Martin. il plan Eng N 69:1218-9 Je 12 '13

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Cup greases. See Lubrication and lubricants

Cup races. See Yacht racing

Cupola furnaces

Ancient cupolas render efficient service at General foundry co., Boonton, N. J. il Foundry 41:149-50 Ap '13

Blast quantity and pressure in cupola working. F. J. Cook. Iron Age 92:292-3 Ag 7 '13

Forehearth for foundry cupolas. diags Iron Age 92:234-5 Jl 31 '13

Foundry—cupola gases and temperatures. A. W. Belden. il diags U S Bur Mines Bul 54: 1-27 '13; Same cond. Iron Age 92:289-90 Ag 7 '13

Fuel-efficiency of the cupola-furnace. J. J. Porter. Am Inst Min E Bul 74:239-48 F '13

Investigation of cupola melting operations. il diags Foundry 41:309-18 Ag '13

Melting iron in the cupola-furnace. R. Moldenke. Am Inst Min E Bul 73:37-46 Ja '13

Newly designed foundry cupola. diags Iron Age 92:795 O 9 '13

Operating a small cupola. W. J. Keep. Foundry 41:455 O '13

Remarkable cupola explosion. plan Iron Age 92:346-7 Ag 14 '13

Studies of the cupola melting process. Iron Age 91:772-1 Mr 27 '13

Cupola furnaces.—*Continued.*

Tests of cupola gases and temperatures: A. W. Belden's report. *Il Iron Tr R* 52:1463-5 *Je* 26 '13

See also Foundry work

Curaçao, West Indies

Improving a harbor of Curaçao. H. C. Plummer. map *Il Sci Am* 108:474-5 *My* 24 '13

Current meters. *See* Water flow**Currents.** *See* Winds**Currents, Electric.** *See* Electric currents**Curves**

Intersecting circular curves with non-parallel tangents: a theorem. W. R. Horn. *diags Eng N* 70:820-1 *O* 23 '13

Laying out Cananea underground curves. A. C. Harris. *diag Eng & Min J* 96:1027-8 *N* 29 '13

Special problem in reverse curves. W. C. Crosby. *Eng N* 69:1322-3 *Je* 26 '13

See also Circle; Railroads—Curves and turnout

Customs service**United States**

Uncle Sam's appraisers of merchandise. *Il Sci Am* 108:244-5 *Mr* 15 '13

Cutting machines

Automatic profiling device. *Il diags Mach* 19: 186-7 *F* '13

Cutting power of lathe turning tools. W. Ripper and G. W. Burley. *Iron Age* 92:1384-9 *D* 18 '13

See also Gear cutting

Cutting of glass. *See* Glass cutting**Cutting of metals.** *See* Metal cutting**Cuyahoga river**

Cuyahoga river in the flood of Mar. 25-26, 1913. E. B. Thomas. *Il map Eng N* 69:922-4 *My* 1 '13

Improvement of the Cuyahoga river at Cleveland, Ohio. map *Eng N* 69:593-4 *Mr* 20 '13

Preliminary report on straightening the Cuyahoga river. *Il map Eng Rec* 67:516 *My* 17 '13

Cuyahoga river draw bridge. Replacing the. *Il diags Eng Rec* 67:20-1 *Ja* 4 '13

Cyanamid

Cyanamid in agriculture. E. J. Franke. *Eng M* 45:432-4 *Je* '13

Cyanide process

Action of oxidizers in cyaniding. *Eng & Min J* 96:392 *Ag* 30 '13

Action of oxidizers in cyaniding. M. Green. *Eng & Min J* 95:1233-6 *Je* 21 '13

Aluminum precipitation at Deloro, Ontario. S. F. Kirkpatrick. *diag Eng & Min J* 95:1277-8 *Je* 28 '13

Aluminum precipitation at Nipissing mill, Cobalt, Ont. E. M. Hamilton. *plan Eng & Min J* 95:935-9 *My* 19 '13

Analysis of cyanide practice. H. A. Megraw. *Eng & Min J* 95:110-3 *Ja* 11 '13

Argo cyanide mill, Idaho Springs, Colo. S. L. Goodale. *Il plan Eng & Min J* 96:385-9 *Ag* 30 '13

Black Oak cyanide plant, Soulsbyville, Cal. H. A. Megraw. *Il Eng & Min J* 95:1179-81 *Je* 14 '13

Calculation of extraction in cyanidation. H. A. Megraw. *Eng & Min J* 96:441-4 *S* 6 '13

Calculation of extraction in cyanidation. W. J. Sharwood. *Eng & Min J* 96:937-40 *N* 15 '13

Calculation of extraction in cyanidation. G. Simpson, jr. *Eng & Min J* 95:1255; 96:1239 *Je* 21, *D* 27 '13

Calculation of extraction in cyanide plants. A. S. Addison. *Eng & Min J* 96:231-2 *Il* 5 '13

Calculation of extraction in cyanide plants. A. G. Cadogan. *Eng & Min J* 95:1109-10 *My* 31 '13

Charcoal as a precipitant; Use of lime. *Met & Chem Eng* 11:719-20 *D* '13

Continuous decantation of slime. H. A. Megraw. *Il plan Eng & Min J* 95:379-81 *F* 15 '13

Continuous decantation with Dorr thickeners. J. Simmons. *diag Eng & Min J* 95:627-8 *Mr* 22 '13

Continuous sand plant in cyanide practice on the Rand. E. L. Bateman. *Met & Chem Eng* 11:672-3 *D* '13

Counter-current decantation of slime. J. V. N. Dorr. *Eng & Min J* 96:270 *Ag* 9 '13

Cyanidation at Cripple Creek, Colo. H. A. Megraw. *Il Eng & Min J* 95:313-7 *F* 8 '13

Cyanidation at the Liberty Bell mill. H. A. Megraw. *Il plan Eng & Min J* 95:9-14 *Ja* 4 '13

Cyanide practice in the Black Hills, South Dakota. H. C. Parmelee. *Met & Chem Eng* 11:395-8, 435-8, 500-2 *Il-S* '13

Cyaniding at Grass Valley, Cal. H. A. Megraw. *Il plan Eng & Min J* 95:983-7 *My* 17 '13

Cyaniding at the Nevada Wonder mill, Wonder, Nev. H. A. Megraw. *Il Eng & Min J* 95: 693-5 *Ap* 5 '13

Cyaniding silver at Nevada Hills mill, Fairview, H. A. Megraw. *Il Eng & Min J* 95:645-8 *Mr* 29 '13

Cyaniding slimy ore by continuous decantation. H. C. Parmelee. *Il plan Met & Chem Eng* 11:25-8 *Ja* '13

Cyaniding the ores of Republic, Wash. H. A. Megraw. *Il Eng & Min J* 95:835-8 *Ap* 26 '13

Cyaniding Zambona low-grade silver ore, Sonora, Mexico. H. A. and R. T. Still. *plan Eng & Min J* 95:745-7 *Ap* 12 '13

Difficulties of vacuum filtration. H. A. Megraw. *Eng & Min J* 95:434 *F* 22 '13

Effect of heat on amalgamating and concentrating in cyanide solution. *Met & Chem Eng* 11:98-9 *F* '13

Electrolysis of aqueous solutions of the simple alkaline cyanides. *Met & Chem Eng* 11:577 *O* '13

Electrolysis of cyanide solution. *Met & Chem Eng* 11:575-7 *O* '13

Evolution of methods of handling slime, the Rand, South Africa. H. N. Spicer. *Il Met & Chem Eng* 11:408-12 *Il* '13

Gold Road cyanide mill, Arizona. H. A. Megraw. *Il diag Eng & Min J* 96:3-6 *Il* 5 '13

Grading analyses and their application to cyanidation. *Eng & Min J* 95:1044-6 *My* 24 '13

Grinding ores for cyanidation. R. B. T. Kiliani. *Eng & Min J* 96:1085-6 *D* 6 '13

Grinding ores for cyanidation. H. A. Megraw. *Eng & Min J* 96:821-4, 917-21 *N* 1, 15 '13

Handling cyanide precipitate at Lluvia de Oro, Chihuahua, Mexico. H. R. Conklin. *Il Eng & Min J* 95:1001-2 *My* 17 '13

Interesting agitator test in cyanide practice. *Met & Chem Eng* 11:112 *F* '13

Metallurgy of the Homestake ore, A. J. Clark and W. J. Sharwood. *Eng & Min J* 95:215-9 *Ja* 25 '13

Meter for cyanide solution. J. Spiers. *plan Eng M* 44:272-4 *N* '12

Milling and cyaniding costs at Bodie, Cal. *Eng & Min J* 95:1003-4 *My* 17 '13

Motherlode mill, Salmo, B. C. C. E. Rodgers. *Il plan Eng & Min J* 96:529-32 *S* 20 '13

Notes on the analysis of zinc dust used for precipitating gold and silver. J. E. Clennell. *Eng & Min J* 95:793-7 *Ap* 19 '13

Ores amenable to cyanidation. H. A. Megraw. *Eng & Min J* 96:629-33 *O* 4 '13

Practical cyaniding. J. Randall. *Il Colliery* 33:335-9, 391-5 *Ja-F* '13

Precipitation temperatures. J. Gross. *Eng & Min J* 95:911-2 *My* 3 '13

Rapid silver estimation in mill solutions. G. H. Clevenger. *plan Eng & Min J* 95:892-3 *My* 3 '13

Rate of dissolution of free gold in cyanide solution. J. Gross. *Eng & Min J* 95:749 *Ap* 12 '13

Refining at Pittsburgh-Silver Peak mill. L. Smith. *Il Eng & Min J* 95:603-4 *Mr* 22 '13

Requirements of small cyanide mills. A. Del Mar. *Il Eng & Min J* 96:769-71 *O* 25 '13

Review of cyanidation in 1912. P. H. Argall. *Eng & Min J* 95:108-10 *Ja* 11 '13

San Francisco mill, Pachuca, Mex. *diag Eng & Min J* 95:1104-5 *My* 31 '13

San Francisco mill, Pachuca, Mexico. *Met & Chem Eng* 11:249 *Je* '13

Shipment of cyanide precipitate. G. H. Clevenger. *Eng & Min J* 95:863-4 *Ap* 26 '13

Cyanide process—Continued.

- Silver cyanidation at Tonopah, Nev. D. F. Irvin. Eng & Min J 95:312 My 3 '13
- Silver cyanidation at Tonopah, Nev. A. H. Jones; H. A. Megraw. Eng & Min J 95: 767-8 Ap 12 '13
- Silver cyanidation at Tonopah, Nevada. H. A. Megraw. il Eng & Min J 95:413-7, 455-9, 593-6 F 22-Mr 8 '13
- Slimes agitation for cyanidation. H. A. Megraw. Eng & Min J 96:1161-4 D 29 '13
- Smelting precipitate at Cerro Prieto, Sonora, Mexico. H. S. Munroe. il diag Eng & Min J 95:1137-9 Je 7 '13
- Study of cyanide precipitates. G. H. Clevenger. Eng & Min J 95:273-4 F 1 '13
- Study of leaching processes. Eng & Min J 96:789-90 O 25 '13
- Synopsis of literature. Met & Chem Eng 11: 51-3 Ja '13
- Two Arizona cyanide mills: Tom Reed mill, at Oatman and the Vulture mill at Wick-enburg. H. A. Megraw. il plans Eng & Min J 96:139-202 Ag 2 '13
- Zinc-dust precipitation. Met & Chem Eng 11: 394 Je '13
- Zinc-dust precipitation at Cerro Prieto, Sonora, Mexico. H. S. Munroe. il Eng & Min J 95:1485-6 My 31 '13

Cyclecars

- Blantogo—motorcycle car. il Automobile 29: 330-1 Ag 28 '13
- British cyclecars and light cars. il Automobile 29:1139-45 D 18 '13
- Cyclecars—American and foreign. il Sci Am 109:265 O 4 '13
- Cyclecars better racers than sidecars. Automobile 29:141 JI 24 '13
- English Morgan wins first cyclecar Grand Prix. il Automobile 29:98-101 JI 17 '13
- Field of the cyclecar. Automobile 28:910 Ap 24 '13
- Fourth international exhibition of the Cycle and motor cycle traders' union at Olympia. J. S. Critchley. il Automobile 29:1135-9 D 18 '13
- French cycle racing-car. S. P. McMinn. Sci Am 109:110 Ag 9 '13
- Los Angeles cyclecar in two models, two-cylinder and four. il Automobile 29:823 O 30 '13
- Many companies take up the cyclecar. Automobile 29:349 Ag 21 '13
- S. A. E. divided on definition of cyclecars. Automobile 29:882-3 N 6 '13
- Three-passenger cyclecar design. G. J. Mercer. diags Automobile 29:814-5 O 30 '13
- Zip cyclecar severely tested. il Automobile 29: 867 N 6 '13

See also Motor cycle trucks

Cycles. See Bicycles and tricycles**Cycles, Motor. See Motor cycles****Cylinder-packing. See Packing****Cylinders**

- Boring a large cylinder in the lathe. E. A. Suverkrop. il Am Mach 38:859-60 My 22 '13
- Casting paper machinery cylinders. il Am Mach 38:166 Ja 23 '13
- Cylinder heads of horizontal single-acting motors. M. H. Müller. diags Power 37:859-60 Je 17 '13
- Efficient production of cylindrical work. C. H. Norton. il Am Soc M E J 35:95-106 Ja '13; Same. Ind Eng 13:4-6 Ja '13; Same. Iron Tr R 52:204-6 Ja 16 '13; Discussion. Am Soc M E J 35:629-31 Ap '13
- Forming motor-car cylinders. Ind Eng 13: 12-3 Ja '13
- How we cast 22 cylinders in one sand mold. G. W. Kelly. il Foundry 41:121 Mr '13
- Loose liner in cylinder causes severe knock. H. E. Collins. diag Power 38:107 JI 15 '13
- Machine finishing of cylinders. S. Dean. Iron Age 91:594-5 Mr 6 '13
- Machining the Ford cylinders. F. H. Colvin. il Am Mach 38:541-6 My 22 '13
- Molding cylinders by hand and machine. il Foundry 41:143-4 Ap '13

- Molding gas engine cylinders for motor cars: methods of Campbell, Wyant & Cannon foundry co., with details of coremaking. il Foundry 41:1-6 Ja '13
- Standard turbine cylinder molding practice. C. A. Tupper. il Foundry 41:47-50 F '13
- Time-saving methods of producing cylindrical work at Norton grinding co., Worcester, Mass. il Ind Eng 13:149-51 Ap '13
- Vanadium iron for motor cylinders. Automobile 29:296 Ag 11 '13
- Water pressure on cylindrical surfaces. plan Eng Rec 67:279 Mr 8 '13
- Cylindrical segments and ellipses. il Power 37:468-70 Ap 1 '13

D**Dairy bacteriology**

- Bacteriology of Cheddar cheese. E. G. Hastings and others. il Sci Am S 75:357-8 Je 7 '13

Dalton's law

- Dalton's law in the steam plant. G. F. Fenno. Power 37:389 Mr 18 '13
- Dalton's law in the steam plant. L. Grossbaum. Power 37:163-4 F 4 '13

Dam failures

- Accident at dam 26 on the Ohio river. plan Eng Rec 67:512-4 My 17 '13
- Cooley Brook dam washed out. Eng Rec 68: 372-3 O 4 '13
- Dam and embankment failures in 1912. M. L. Fuller. Eng Rec 67:426-8 Ap 19 '13
- Failure of coffer at lock and dam no. 48, Ohio river. J. C. Oakes. plans Eng N 70:231-2 JI 31 '13; Same. Eng Rec 68:120 Ag 2 '13
- Failure of earth dam at Gladwin, Mich. Eng Rec 67:sup 41 F 1 '13
- Lessons from the failure of a weir and sluices on porous foundations. W. G. Bligh. il plan Eng N 69:266-70 F 6 '13

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- Recovery of liquidated damages: Isthmian canal case. W. B. King. Eng Rec 67:641-2 Je 7 '13
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Dampness in buildings

- Preventing dampness in masonry. il Eng Rec 67:82-3 Ja 18 '13; Same. Concrete Cem 2: 91 F '13

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- Advantages of the rolling dam. Eng Rec 68: 564 N 22 '13
- Boring and grouting: methods used on Lahontan dam of the Truckee-Carson project. D. W. Cole. il map Eng Rec 67:340-2 Mr 29 '13; Same. Eng N 69:647-51 Ap 3 '13
- Building the dam: Twin Falls hydroelectric development. G. C. Newton. plan Eng Rec 67:582-3 My 24 '13
- Completion of the rebuilt Assuan dam. il Eng N 69:143-4 Ja 23 '13
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- Cyclopean masonry dam at Pittsfield. H. A. Miller. Eng Rec 68:291 S 13 '13
- Design and construction of Oakley dam. il Eng Rec 67:32-4 Ja 11 '13
- Design of masonry dams. Eng N 70:623-6 S 25 '13
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- Hugh L. Cooper, who built the Keokuk dam. W. P. Green. Sci Am 109:366 N 8 '13
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- Kachess dam, Washington. E. H. Baldwin. il plans Eng N 69:989-99 My 15 '13
- Largest embankment in Germany. Sci Am 108:107 F 1 '13
- Las Vegas arched masonry dam. il Eng Rec 67:17 Ja 4 '13
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- Möhne dam, Ruhr district, Germany. il Eng N 70:751 O 16 '13
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- Neglected first principles of masonry dam design. J. S. Eastwood. Eng N 70:832-3 O 23 '13
- Neglected first principles of masonry dam design. G. H. Moore. Eng N 70:442-5 S 4 '13
- Ohio river lock and dam 48. il plan Eng Rec 67:412-3 Ap 12 '13
- Operation of the Mohawk river bridge dams. D. A. Watt. il Eng N 70:282-9 Ag 14 '13
- Pneumatic caissons for Scotia dam. plans Eng Rec 68:248-9 Ag 30 '13
- Power from the Mississippi river at Keokuk, Ia. il Power 38:184-6 Ag 5 '13
- Replacing sills of chanoine wicket dams. Eng N 70:181 J1 24 '13
- Report on weir in the Niagara river. map Eng Rec 68:206-8 Ag 23 '13
- Reservoir dam for Cambria steel company. Iron Tr R 52:694 Mr 20 '13
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- Rock grouting and caisson sinking for Hales Bar dam. il plans Eng N 70:949-56 N 13 '13
- Rolling dam of the Boise project. C. H. Paul. il diag Eng Rec 68:125-6 Ag 2 '13
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- Upward water pressure on the reversed dam. F. C. Osborn. Eng N 69:127 Ja 16 '13
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- Use of hydraulic lime for masonry dam. Eng Rec 67:659 Je 14 '13
- Waldeck storage dam, Germany. R. Grimshaw. il plans Eng N 70:852-4 O 30 '13
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- Dams, Concrete**
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- Concrete arched dam near Cheyenne, Wyoming. M. V. Moulton. il plan Eng Rec 67:149-50 F 8 '13
- Construction features of the Elephant Butte dam. U. S. reclamation service. plan Eng N 69:120-2 Ja 16 '13
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- Court decision on a concrete dam patent. Concrete Cem 3:232 N '13
- Design and specifications for the Arrowrock dam, U. S. reclamation service. plan Eng N 69:118-20 Ja 16 '13
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- Foundations for the Hale's Bar dam; pneumatic caissons used for excavating seamy rock for a hydroelectric project on the Tennessee river. il Eng Rec 67:178-80 F 15 '13
- Ingenious dam in French Indo-China. il diag Concrete Cem 3:250 D '13
- Internal water-pressure in hollow dams. D. Stairs; G. L. Bilderbeck. Eng N 69:225-6 Ja 30 '13
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- Rapid construction on Medina valley irrigation project in Texas. T. Bartlett. il plan map Eng N 70:508-13 S 11 '13
- Raystown hydroelectric plant near Huntingdon, Pa. il plans Eng Rec 67:712-4 Je 28 '13
- Reconstructing the foundation of Elwha river dam. il diag Eng N 70:1258-9 D 18 '13
- Reinforced-concrete dam that has safely passed its second flood, Akron, O. J. C. Lathrop. il Eng N 69:919 My 1 '13
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- Arabian date trade. Sci Am S 76:295 N 8 '13
- Davenport, Iowa**
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- Concrete pavement in Davenport and vicinity. A. M. Compton. Concrete Cem 1:78-80 D '12
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- New davits for lifeboats: characteristics of the Babcock and Wilcox boat-lowering gear. il Eng M 46:124-6 O '13
- Day, John, 1522-1584**
- Printers of note. W. C. Bleloch. Inland P'tr 52:218-9 N '13
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- Artificial daylight for color matching. R. F. Pierce. il Sci Am S 76:133-4 Ag 30 '13
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- Flood devastation. map Eng Rec 67:403-4 Ap 12 '13
- Flood protection for Dayton. Eng Rec 68:399-400 O 11 '13
- Preliminary report on Dayton flood protection. Eng N 70:775-6 O 16 '13
- Politics and government**
- New home rule charter of Dayton, Ohio. Munic Eng 45:270-3 S '13
- Deaf and dumb**
- Voices of the deaf: graphic records of speech. E. W. Scripture. il Sci Am S 76:60-1 J1 26 '13
- Asylums and education**
- New method of educating deaf mutes. J. Boyer. il Sci Am 108:221 Mr 8 '13
- Deaf mutes. See Deaf and dumb**
- Deafness**
- Treating deafness by electricity. Sci Am 109:366 N 8 '13
- Death rate. See Mortality**
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Power developments on the Deerfield river. Mass. il map plans Eng Rec 67:116-8, 153-7, 181-4 F 1-15 '13

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See also Deaf and dumb

Delaware & Hudson railroad

83d annual report, 1912. Ry Age 54:927-30 Ap 18 '13

Expenses and revenues of the Delaware & Hudson for 1912. Ry Age 54:867-8 Ap 18 '13

Delaware, Lackawanna & Western railroad

City that appreciates a railroad: Montclair, N. J. Ry Age 55:54-5 Jl 11 '13

New D. L. & W. line north of Scranton, Pa. il diag Ry Age 54:911-2 Ap 25 '13

Nicholson relocation of the Lackawanna railroad. G. J. Ray. Eng Rec 67:461-2 Ap 26 '13

Same. Ry & Eng R 53:383 Ap 26 '13

Roadbed improvements. Ry & Eng R 53:392-3 Ap 26 '13

Summit cutoff of the Lackawanna railroad. il diags maps Eng N 70:410-9 Ag 28 '13

Summit-Hallstead cut-off of D. L. & W. il map Ry Age 55:903-8, 1069-74 N 14, D 5 '13

Delhi, India**Architecture**

Architecture for Delhi. Arch Rec 33:476 My '13

Delhi, the metropolis of India: how shall the new Indian capital be built? B. Leslie. il Sci Am S 75:72-4 F 1 '13

Public works

Government and public works of Delhi, India. T. Salkield. Eng N 69:1095-7 My 22 '13

Delivery vehicles. *See* Automobile trailers; Motor cycle trucks; Motor trucks**De Moseenthal, Henry, 1850-1912**

In memoriam. Met & Chem Eng 11:66 F '13

Demurrage

Demurrage as a remedy for car shortages. J. O. Klapp. Ry Age 55:1223-7 D 26 '13

Need for a higher demurrage rate. Ry Age 54:2-3 Ja 3 '13

Proposed extension of demurrage agreements. map Ry Age 55:425 S 5 '13

Terminal service. W. M. Prall. Ry & Eng R 53:574-7 Je 14 '13

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Denver water case. Eng Rec 68:3 Jl 5 '13

New sixty-inch water-supply conduit at Denver. il Eng Rec 67:60-2 Ja 18 '13

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Department stores

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Heating and ventilating Bonwit-Teller Bldg., N. Y. city. plans Dom Eng 62:368-72 Mr 29 '13

Lighting and motor service installed in the Filene establishment, Boston. il Elec W 62:579-85 S 20 '13

Lighting of Hamburger store, Newark, N. J. il Elec W 61:1096 My 24 '13

New lighting equipment of McCreery & co., Pittsburgh. plan Elec W 61:304-5 F 8 '13

Stern brothers' store, New York. il plan Arch & Bldg 45:403-13 O '13

Ventilating a modern department store. il diags Dom Eng 62:96-8 Ja 25 '13

Depreciation

Depreciation and obsolescence in Portland cement plants. H. Struckmann. Am Soc M E J 35:262-4 F '13; Discussion. 35:261-75 F '13

Depreciation and public service regulation. R. H. Whitten. Eng N 69:912-7 My 8 '13

Depreciation: estimated and actual. A. C. Humphreys. Stevens Ind 39:311-37 O '13

Depreciation factor in cost of producing Portland cement. F. H. Lewis. Am Soc M E J 35:257-61 F '13

Depreciation in railway valuation. Ry Age 54:1535 Je 26 '13

Depreciation in valuations. E. A. Salliers. J Account 15:106-16 F '13

Depreciation or valuation of properties. L. R. Pomeroy. Ry Age 55:274-5 Ag 15 '13

Depreciation reserves vs. depreciation funds. E. A. Salliers. J Account 16:358-65 N '13

Disputed points in railway valuation. Ry Age 54:1164 My 30 '13

Physical valuation of public utilities. R. S. Hale. Eng M 45:161-5 My '13

Practical studies of depreciation. Power 37: 500 Ap 8 '13

Study in depreciation. L. Bell. il Elec W 62: 379 Ag 23 '13

Derailments

Analysis of a broken rail. Ry Age 55:623 O 3 '13

Derailment of trucks on curves. A. Stuckl. il Ry Age 54:111-2 Ja 17 '13

Derailments on Chicago elevated. Elec Ry J 41:253 F 8 '13

Factors affecting derailments on sharp curves. Eng Rec 67:185-6 F 15 '13

Hays Mill, Ala. wreck; transverse fissures in steel rails. Ry & Eng R 53:909-11 S 27 '13

Increasing number of car wheel failures. Iron Age 91:588-9 Mr 6 '13

Interstate commerce commission report on derailment near Stockwell, Ind., Jan. 7, 1913. Eng N 70:1177 D 11 '13

Locomotive tender derailments. diags Ry Age 51:209-12 Ja 31 '13

Recent derailments on the Chicago elevated loop. Eng N 69:381-2 F 20 '13

Report on Glen Loch derailment. Ry Age 54: 747-9 Mr 28 '13

Report on the Stilwell derailment. C. C. C. & St. L. Ry. il plan Ry & Eng R 53:1016-7 N 1 '13

Responsibility for minor derailments. E. R. Meredith. Ry Age 55:1176-7 D 19 '13

Tender derailments. F. W. Green. Ry Age 54:328 F 28 '13

Wreck caused by a broken tire. il Ry Age 55:814-6 O 31 '13

Derricks. *See* Cranes, derricks, etc.**Design**

Pirating of commercial designs and why a new law is needed to protect such designs. E. W. Bradford. Inland Ptr 51:903-4 S '13

Sketching of mechanism in designing. F. W. Harris. Sci Am S 75:179-80 Mr 22 '13

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Design, Decorative

Importance of design in the development of art metal industry. A. F. Saunders. il Metal Ind n s 11:15-6 Ja '13

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Des Moines, Iowa

Civic center of Des Moines. G. B. Lord. il Munic Eng 44:194-6 Mr '13

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Decision in Des Moines franchise case. Elec Ry J 41:650 Ap 5 '13

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Work of the late Désiré Despradelle. F. A. Bourne. il Arch Rec 34:185-9 Ag '13

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Don'ts for detonator users. Eng & Min J 96:1020-1 N 29 '13

Use of multiple detonators. Eng & Min J 96:450 S 6 '13

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Tests of electric detonators. Eng Rec 67:718 Je 28 '13

Detroit, Michigan**Industries**

City built by the automobile industry. L. V. Spencer. il Automobile 28:791-7 Ap 10 '13

Radius of Detroit. il Am Ind 13:9-11 My '13

Railroads

Passenger station of the Michigan Central. il plan Ry & Eng R 53:1191-6 D 27 '13

Rapid transit

Detroit's municipal ownership charter amendment. Elec Ry J 41:557 Mr 22 '13

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Detroit united railway

Annual report for 1912 and 1911. Elec Ry J 41:307-8 F 15 '13

Appraisal of the city lines. plan Elec Ry J 41:897-8 My 17 '13

Decision of Detroit arbitrators in regard to working conditions and wages. Elec Ry J 42:1028-9 N 8 '13

Decision of Supreme court in Fort street case, Detroit. Elec Ry J 41:1030-1 Je 7 '13

Dewey decimal system. See Classification, Decimal**Diamond drilling. See Boring****Diamond tools**

Use of rough diamonds for metal grinding purposes. W. H. Parry. Metal Ind n s 11:343-4 Ag '13

Diamonds

Diamond mining in Arkansas. J. T. Fuller. Eng & Min J 95:75 Ja 11 '13

Diamond prospecting and washing devices. il Eng & Min J 95:850-1 Ap 26 '13

Formation of diamonds. L. K. Hirshberg. Mines & Min 33:339 Ja '13

Mounting and setting diamonds. W. C. Betz. il Mach 20:137 O '13

New international diamond carat of 200 milligrams. G. F. Kunz. Am Inst Min E Bul 79:1225-45 J1 '13; Same. Sci Am S 76:82-3, 98-9 Ag 9-16 '13

See also Carat

Diamonds, Artificial

Artificial diamonds. Eng & Min J 96:1031 N 29 '13

New way of making artificial diamonds. il Sci Am 108:515 Je 7 '13

Production of the diamond in electric furnaces. F. P. Mann. diags Met & Chem Eng 11:361-3 Je '13

Dictionaries

Dictionary for the proofroom. F. H. Teall. Inland Ptr 52:262-4 N '13

New standard dictionary. F. H. Teall. Inland Ptr 52:431-2 D '13

Die. See Dies**Die-sinking machines**

Improved die-sinking machine. il Iron Age 91:1236 My 22 '13

Dielectrics

Air as an insulator when in the presence of insulating bodies of higher specific inductive capacity. C. L. Fortescue and S. W. Farnsworth. il Am Inst E E Pro 32:758-72 Mr '13; Discussion. 32:1132-57 My '13

Dielectric properties of non-conductors. P. Thomas. J Fr Inst 176:283-301 S '13

Dielectrics in alternating-current fields. Elec W 61:226-7 F 1 '13

Dielectric strength of thin insulating materials. F. M. Farmer. Am Inst E E Pro 32:2192-2205 D '13; Summary. Elec W 62:1250 D 20 '13

Electric strength of air. J. B. Whitehead and T. T. Fitch. bibliog Am Inst E E Pro 32:1316-33 Je '13; Discussion. 32:2300-15 D '13

High-voltage engineering. F. W. Peek, jr. J Fr Inst 176:611-13 D '13

Law of corona and dielectric strength of air. F. W. Peek, jr. Am Inst E E Pro 32:1326-55 Je '13; Discussion. 32:2300-15 D '13

Oscillograph study of corona. E. Bennett. il Am Inst E E Pro 32:1472-94 Je '13; Discussion. 32:2300-15 D '13

Positive and negative corona and electrical precipitation. W. W. Strong. Am Inst E E Pro 32:1304-14 Je '13; Discussion. 32:2300-15 D '13

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Dies

Blanking, forming and punching die. J. Stanitz. diag Mach 19:802 Je '13

Bulldozer in railway shops: examples of two-piece dies used successfully on this type of machine. L. D. Freeman. il plans Am Eng 87:77-9 F '13

Button back blanking and piercing die. W. J. Oldroyd. diag Mach 19:963-4 Ag '13

Cluster double-action punches and dies. B. W. Hurd. diags Mach 20:259-60 D '13

Combination dies. Easy Way. Metal Ind n s 11:87-8, 169 F, Ap '13

Combination punching, cutting and forming die. F. Sparkuhl. diags Mach 19:722 My '13

Curling and closing die. A. Lawrence. diags Mach 19:53 S '12

Curling, wiring and seaming dies. diags Metal Ind n s 11:248-9 Je '13

Die for piercing rods and rivets. C. Lamoreaux. il diag Mach 19:529-30 Mr '13

Forging machine dies. B. Hendrickson. Ry Age (Mech ed) 87:431-5 Ag '13

Hardening hammer dies. W. E. Snow. diags Mach 19:760-2 Je '13

Hollow punches and fluid dies. diags Metal Ind n s 11:513-4 D '13

Interesting drawing and curling dies. D. T. Hamilton. il Mach 19:375-6 Ja '13

Landis stationary pipe die head. Ry Age (Mech ed) 87:626 N '13

Making ball players' shoe plates. A. F. Horton. il diags Mach 19:780-2 Je '13

Making dies used in the die-casting process. il plans Foundry 41:193-6 My '13; Same. Iron Tr R 53:119-22 J1 17 '13

Making thread-cutting dies. A. Metz; J. B. Hasty; G. W. Smith. Ry Age (Mech ed) 87:423-4 Ag '13

Manufacture of white-metal die castings. il diag Am Mach 38:819-22 My 15 '13

Molding die for fiber insulations. E. Chipman. diags Mach 19:371 Ag '13

Oval turning device for the lathe. F. E. Ross. il Am Mach 38:729-31 My 1 '13

Practical nickel solution for plating die castings. C. H. Proctor. il Metal Ind n s 11:11-2 Ja '13

Punch and die for bending past the vertical line. E. Hawkins. diag Mach 19:548 Mr '13

Punch and die for forming electric terminals. A. L. Senesac. il diags Mach 19:671-2 My '13

Punch and die made in sections. A. L. Monrad. plan Mach 19:505-6 Mr '13

Sectional punch and die construction. A. L. Monrad. plan diag Mach 19:899-900 J1 '13

Standards in die work. C. A. Clark. Mach 19:423 F '13

Sub-press die for piercing and shaving. A. Van Wagner. diags Mach 20:215-6 N '13

Tools for multiple plunger presses. C. Doescher. diags Mach 19:449-52 F '13

Van Wagner mfg. co.'s die-casting practice. Syracuse, N. Y. C. L. Lucas. il diags Mach 19:327-31, 425-8 Ja-F '13

Wells bros. co.'s self-opening die. il Mach 19:727-8 My '13

See also Forging; Metal work; Sheet-metal work

Diesel, Rudolf, 1858-

Appreciation. 11: H. Suplee. por Sci Am 109:306 O 18 '13

Diesel engines

- Application of Diesel engines to war vessels. P. Dumanois. *Am Soc M E J* 35:1777-9 D '13
- Carels-Diesel engine applied to motor ship Eavestone. *il Eng M* 44:601-4 Ja '13
- Crude oil Diesel engine: special design for horizontal type. *il Sci Am S* 75:153 Mr 8 '13
- Diesel engine driving rolling mill. A. Gradenwitz. *il Power* 37:85-6 Ja 21 '13
- Diesel engines at English country house. A. H. Allen. *il Power* 37:51-2 Ja 14 '13
- Experience with oil engines in Minnesota. *Elec W* 61:735-6 Ap 5 '13
- First American-built marine Diesel engines. *il diag Power* 37:780-2 Je 3 '13
- French Diesel engine. *il Sci Am S* 76:4-6 Jl 5 '13
- Fuel oils for use in marine Diesel engines. *il Int Marine Eng* 18:104-5 Mr '13
- Fuels for Diesel engines. *Power* 38:753-5 N 25 '13
- German Diesel engine tank ship Hagen. *il plans Int Marine Eng* 18:207-11 My '13
- Hazard due to starting Diesel engines with compressed oxygen. *Elec W* 62:1020 N 15 '13
- Heavy oil as fuel for internal-combustion engines. I. C. Allen. *Ind Eng* 13:392-5 S '13; Same. *Sci Am S* 76:326-7 N 22 '13
- Motor ship Eavestone's first long voyage. *il plan Int Marine Eng* 18:78-80 F '13
- Motor yacht Idealia, equipped with Diesel engines. *il Int Marine Eng* 18:163-5 Ap '13
- New Diesel engine. *Sci Am S* 75:271 Ap 26 '13
- Observations on the oil engine. J. F. Wentworth. *Power* 37:338-41 Mr 11 '13
- 100 horsepower Niseco Diesel engine. *il diag Int Marine Eng* 18:410-1 S '13
- Operator's experience with Diesel engines. J. Pierce. *Power* 37:496 Ap 8 '13
- Power applications of Diesel engines in industrial plants. C. Van Langendonck. *il Eng M* 45:843-52 S '13
- Principles of the Diesel oil engine. H. Haas. *il Eng & Min J* 95:843-8 Ap 26 '13
- Progress of the oil engine in Great Britain. *Int Marine Eng* 18:218 My '13
- Recent development of gas power in Europe. H. J. Freyn. *Eng N* 69:228-30 Ja 30 '13
- Research work on large Diesel engines. *il Power* 37:19 Ja 7 '13
- Rudolf Diesel: an appreciation. H. H. Suplee. *Sci Am* 109:306 O 18 '13
- Single screw motor ship of 1,500 b. h. p. J. R. Wilson. *il plan Int Marine Eng* 18:102-4 Mr '13
- Stationary oil engines: manufacture of small sizes. *Sci Am S* 76:383 D 13 '13
- Turbines and Diesel engines in central stations. M. Gercke. *Power* 37:286-9 Mr 4 '13
- Twin-screw motor-ship Hagen—a new Krupp two-stroke type Diesel-engine tank vessel of 2400 b. hp. J. R. Wilson. *il Eng N* 69:596-7 My 1 '13
- Twin-screw motor ship Monte Penedo. *il Eng M* 44:257-61 N '12

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Testing

- Test of 225-hp Diesel engine at Hugo, Okla. *Elec W* 61:1047-8 My 17 '13

Diesel locomotives

- Diesel locomotive. *Sci Am* 108:296 Mr 29 '13
- Diesel locomotive for Prussian-Hessian state railways. P. *Elec Ry J* 42:1026-7 N 8 '13
- First Diesel locomotive. *il diag Sci Am* 109:225-6 S 20 '13; *Power* 38:470-3 S 30 '13; *Eng N* 70:656-9 O 2 '13
- Sulzer-Diesel locomotive. *il diag Ry Age* 55:697-S O 17 '13
- Sulzer-Diesel locomotive: details of the running gear of the first engine completed. *diag Eng M* 46:443-5 D '13

Dikes (engineering)

- Aids to navigation on the Missouri river. F. C. Perkins. *il Sci Am S* 75:100-1 F 15 '13

See also Levees

Dining cars

- Ventilation of dining cars. *il Heat & Ven* 10:40-1 Mr '13

Dirigible balloons. *See* Balloons and airships**Disasters**

- See* Building failures; Collisions at sea; Floods; Mine accidents

Discount

- Methods of writing off discount on bonds. G. R. Webster. *J Account* 16:169-71 S '13

Disease germs. *See* Bacteriology**Diseases**

- Blunders made by nature: disease of the respiratory tract and circulation. A. Maverick. *Sci Am S* 76:171-2 S 13 '13
- Prevention of disease versus cost of living. T. F. Harrington. *Sci Am S* 75:402-3 Je 28 '13

See also Cholera, Asiatic; Infantile paralysis; Infectious diseases; Lead poisoning; Occupations—Diseases and hygiene; Public health; Tuberculosis; Typhoid fever

Disinfectants. *See* Disinfection and disinfectants**Disinfection and disinfectants**

- Ozone as an aid to good health. *il Sci Am* 109:11 Jl 5 '13
- Ozone in ventilation. M. W. Franklin. *Heat & Ven* 10:30-5 O; 13-8 N '13
- Progress in standardization of disinfectants. J. M. Weiss. *Bibliog J Fr Inst* 175:615-25 Je '13
- Purification of air and water by means of ozone. J. C. Olsen. *Heat & Ven* 10:35-7 D '13
- Scientific cleansing of railway coaches. J. T. A. Walker. *il Ry Age* 54:328-30 F 21 '13

See also Fumigation; Ozone

Dissociation

- Electricity and chemical action. H. C. Jones. *Sci Am S* 75:174-6 Mr 15 '13

See also Electrochemistry; Electrolysis

Distillation

- Distilling machinery. *il Met & Chem Eng* 11:299-300 My '13
- Multiple-effect water stills. *il Met & Chem Eng* 11:661 N '13

See also Wood distillation

Distilled water. *See* Water, Distilled**Distribution (economics)**

- Wastes of distribution. *Eng M* 44:759-60 F '13

District electric railway commission, Washington, D. C.

- Fifth annual report, 1912. *Elec Ry J* 41:301 F 15 '13

Disulphide of carbon. *See* Carbon disulphide**Ditches.** *See* Irrigation canals**Diversity-factor.** *See* Electric terminology**Divining rod**

- Dowsing in France and in Colorado. *Eng & Min J* 95:862 Ap 26 '13
- Dowsing in France and in Colorado. C. E. Dutton. *Eng & Min J* 95:1011 My 17 '13

Docks

- Accident to the foundations of the Pearl harbor dry dock. H. R. Stanford. *plan Eng N* 69:185 Mr 6 '13
- Calculation of docks and bulkhead walls. *diag Eng Rec* 68:325-7 S 20 '13
- Concrete deposited under sea water. H. R. Stanford. *il Concrete Cem* 2:65 F '13
- Dreadnought floating dock: difference between the box dock and docks of the self-docking type. F. C. Coleman. *il Sci Am S* 76:184-5 S 20 '13
- Dry dock on St. Lawrence river at Levis, Quebec. *plans Eng N* 70:1214-8 D 18 '13
- Economy of inclined dock elevator. *il Int Marine Eng* 18:55 F '13
- German-built 25,000-ton floating dock, Hamburg. *il Int Marine Eng* 18:287 Jl '13
- Illumination of docks and wharves. *il Int Marine Eng* 18:383-4 S '13
- New Gladstone wet and dry dock, Liverpool. *Eng. il plan Eng N* 70:454-6 S 4 '13
- New Liverpool docks. T. Osborne. *Int Marine Eng* 18:431-2 O '13
- New railway drydock plant at Harbor Grace, Newfoundland. *Int Marine Eng* 18:105-6 Mr '13

Docks —Continued.

Reconstruction of a timber crib dock at Erie, Pa. *il diag Eng Rec 68:152 Ag 9 '13*
 12,000-ton floating dry dock at Seattle. *il Int Marine Eng 18:289-90 Jl '13*

See also Freight handling; Harbors; Ore docks; Ports; Wharves

Dogs

Dogs for the Dutch army. W. J. L. Kiehl. *il Sci Am 108:353 Ap 19 '13*
 Don, the talking dog. L. K. Hirshberg. *Sci Am 108:502 My 31 '13*

Dome mines co., South Porcupine, Ont.

Second annual report for period Nov. 30, 1911, to Mar. 31, 1913. *Eng & Min J 96:217-8 Ag 2 '13*

Domes

Dome of the Melbourne library. plan Concrete Cem 3:263-4 D '13
 Dome of the Wisconsin capitol. *il plans Eng N 70:389-95 Ag 28 '13*

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Doorway suggestions for concrete houses. *il Concrete Cem 2:114 Mr '13*
 Doorways of an old whalling village. G. N. Rosé. *il Arch Rec 33:55-65 Ja '13*
 English fire test on concrete doors. *il plan Concrete Cem 3:216 N '13*

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Chimney design. *diag Power 38:277-9 Ag 19 '13*
 Draft and boiler capacity and efficiency. *Power 37:183-4 F 11 '13*
 Draft and its measurement. *Power 38:244-6 Ag 12 '13*

See also Chimneys; Combustion; Firing; Mechanical draft; Mine ventilation; Tunnel ventilation; Ventilation

Draft, Mechanical. *See* Mechanical draft**Draft gears**

Draft gear and the M. C. B. Ry & Eng R 53: 651 Jl 5 '13
 Freight car troubles: poor draft gear and attachments. J. C. Fritts. *il Ry Age 55:499-501 S 19 '13*; Same. *Ry Age (Mech ed) 87: 551-4 O '13*
 Testing draft gears prior to purchasing. B. V. Crandall. *Ry & Eng R 53:397-9 Ap 26 '13*
 Why is the subject of draft gear neglected? *Ry & Eng R 53:567 Je 14 '13*

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Draft tubes

Method for designing concrete draft tubes. *Eng Rec 68:161 Ag 9 '13*

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Standard drafting table at the University of Illinois. A. F. Comstock. *diags Eng Rec 68:494 N 1 '13*

Draftsmen

English ship draftsmen and technical graduates. L. B. Chapman. *Int Marine Eng 18: 220-2 My '13*
 Ethical relation between the draftsman and the mechanical engineer. F. R. Hutton. *Eng N 69:71-2 Ja 9 '13*
 Hygiene for draftsmen. F. G. Higbee. *Am Mach 38:823-4 My 15 '13*

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Drain tile

Specifications for drain tile and sewer pipe; committee report of Iowa state drainage assn. *Eng Rec 67:235-6 Mr 1 '13*
 Specifications for drain tile, for sewer tile and for pipe laying. A. Marston and A. O. Adams. *diags Concrete Cem 3:201-4 N '13*
 Strength of drain tile and sewer pipe. *Eng Rec 68:46-7 Jl 12 '13*
 Testing drain tile and sewer pipe. M. Schuyler. *Eng Rec 68:695-7 D 20 '13*

Drainage

Drainage of the Haarlem lake in Holland. map *Eng Rec 67:559-61 My 17 '13*
 Government aid in land drainage. A. E. Morgan. *Eng N 69:978-9 My 8 '13*
 Land drainage in Louisiana. A. M. Shaw. *il plan Eng N 70:300-3 Ag 14 '13*
 Lazwell drainage-pumping plant near Burlington, Iowa. *il Power 37:846-8 Je 17 '13*
 Mosquito extermination and its problems. E. Winship. *il Eng Rec 67:490-2 My 3 '13*
 Railroad roadbed drainage. J. T. Bowser. *Eng Rec 67:290-2 Mr 15 '13*
 Reclaiming the Florida everglades: joint report of Board of engineers. *Eng N 70:835-7 O 23 '13*; *il map Eng Rec 68:454-7 O 25 '13*

Swamp drainage and the floods. A. N. Cross. *Sci Am 108:397 My 3 '13*

Third annual convention of the National drainage congress, St. Louis, 1913. *Eng N 69:875-7 Ap 24 '13*

Tile drainage and its relation to floods. C. G. Elliott. *Eng N 69:877-8 Ap 24 '13*

Topographical surveys for drainage districts. W. A. Birket. *Eng N 69:352-3 F 20 '13*

Yakima Indian reservation drainage project. J. W. Martin. *il map Eng N 69:343-7 F 20 '13*

See also Irrigation; Marshes; Mine drainage; Reclamation of land; Sewerage

Drainage, House

House drain and the connections to the sewer. F. W. Tower. *Dom Eng 65:368-71 D 20 '13*

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Aesthetic design for drawbridges. plan *Eng N 70:926 N 6 '13*
 Concerning railway drawbridges and river rights. *Eng N 69:175-6 Ja 23 '13*
 Difficulties in placing the substructure for a swing bridge: cofferdam of wood and sheet steel piling, Newark, N. J. plans *Eng Rec 67:268-9 Mr 8 '13*

Drawbridge stalled by an unusual accident. *il Eng N 69:88 Ja 9 '13*

Drawbridges over rivers having limited navigation. C. E. Smith. *Eng N 69:151-2 Ja 23 '13*

Improved drawbridge gate latch. plan *Eng Rec 67:212 F 22 '13*

Low-cost drawbridge. *il plan Eng Rec 68: 69 Jl 19 '13*

Pivot pier of Chelsea bridge north. *il diags Eng Rec 68:138-9 Ag 2 '13*

Preliminary considerations in the design of opening bridges. H. G. Tyrrell. *Ry Age 55: 1230-1 D 26 '13*

Providing for navigation during erection of drawbridges. plan *Eng N 69:153-5 Ja 23 '13*

Renewing two double track swing spans. *il diag Ry Age 55:699-702 O 17 '13*

Replacing lower chord of a drawspan while in service. *il Eng Rec 67:571 My 24 '13*

Replacing the Cuyahoga river draw bridge [bascule]. *il diags Eng Rec 67:20-1 Ja 4 '13*

Southern Pacific bridge at Sacramento: double track, double deck, swing span. *il Ry Age 54:846-9 Ap 11 '13*

Temporary drawbridge of the horizontal rolling type. Oneida street, Milwaukee. *il plans Eng N 69:210-1 Ja 30 '13*

Turntable drawspan for a temporary city highway bridge, between Charlestown and Chelsea. *diags Eng Rec 68:122-3 Ag 2 '13*

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Drawing instruments

Bramwell precision drawing instrument. *il Mach 19:481-2 F '13*

Combination drafting instruments, by E. Z. Lesh. plan *Eng N 69:855 Ap 24 '13*

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Bettering the efficiency of the structural shop. E. J. Knapp. *Eng M 45:81-8 Ap '13*

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- Cross sections and symbols, diags Am Mach 38:775-8, 791 My 8 '13
 Discussion on report of the committee on standard cross-sections and symbols, il Am Soc M E J 35:18-27 Ap '13
 Don'ts for draftsmen, M. W. Fox, Mach 20: 15 S '13
 Drafting room opportunities, B. K. Read, Ry & Eng R 53:419-20 My 3 '13
 Easier reading of drawings, R. I. Clegg, Iron Age 91:11 Ja 2 '13
 Ethical relation between the draftsman and the mechanical engineer, F. R. Hutton, Eng N 69:71-2 Ja 9 '13
 False economy in drafting, C. J. Morrison, diags Ry Age (Mech ed) 87:361-2 Ji '13
 Photography in the drafting room, il Eng M 45:109-11 Ap '13
 Practical design as it concerns the shop, E. J. Knapp, Eng M 46:415-6b D '13
 Simple system for filing and handling tracings and prints, F. Buch, il Eng M 45:546-61 Ji '13
 Standardizing drafting-room and shop terms, Mach 19:525 Mr '13
 System for the drafting office, pattern shop and foundry, F. Tissington, Mach 19:877-9 Ji '13

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Drawings

- Claude process for reproducing drawings, il Sci Am S 75:104 F 15 '13

Dredging

- Dipper-dredge work on Neponset river, E. M. Blake, il Eng Rec 68:551-2 N 15 '13
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 Dredging problems in Wilmington harbor, Delaware, R. R. Raymond, map Eng N 69: 938-41 My 8 '13
 Hydraulic dredging on the upper Mississippi river, R. Monroe, il Eng N 70:143-5 Ji 24 '13
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Dredging machinery

- Automatic dredge recorder, U. Thompson, diags Eng M 45:417-9 Je '13
 Col. M. B. Adams—a 4-yard dipper dredge, A. F. King, il Int Marine Eng 18:280-2 Ji '13
 Dipper dredge with hydraulic jets for leveling the spoil banks, C. B. Loomis, il Eng N 70:196-7 Ji 31 '13
 Dipper dredges for Panama, il Int Marine Eng 18:194-5 My '13
 Dredge-cutter recording device, il Eng N 69: 850-1 Ap 24 '13
 Dredge spuds on the Panama canal, Eng & Min J 95:1148 Je 7 '13
 Dredgers for gold and tin, Int Marine Eng 18:186-7 My '13
 Dredging, M. G. Kindlund, il Int Marine Eng 18:188-92 My '13
 Dredging equipment for harbor maintenance, Eng Rec 67:270 Mr 8 '13
 Dutch suction dredger, F. M. Van Brakel, plan Int Marine Eng 18:192-3 My '13
 8-cubic yard dipper dredge, plans Int Marine Eng 18:185-6 My '13
 Electric hydraulic dredge, East St. Louis, Ill, il Eng N 70:432-4 Ag 28 '13
 Equipment and performance of the British Columbia dredging fleet, il Eng Rec 68:209-12 Ag 23 '13
 Evolution of gold dredging machinery, A. H. Martin, Mach 19:370-1 Ja '13
 Feathering paddle wheels for self-propelling dredges, J. M. Sweeney, Eng N 69:128 Ja 16 '13
 Hydraulic dredge Ithaca, R. R. Roane, il Int Marine Eng 18:187 My '13
 Hydraulic dredge Niagara, plans Int Marine Eng 18:196-8 My '13
 Hydraulic dredging on New York barge canal, E. Low, il plan Eng N 69:710-20 Ap 10 '13
 Hydraulic suction dredge for canal work, il plan Int Marine Eng 18:183-4 My '13

- Land drainage in Louisiana, A. M. Shaw, il plan Eng N 70:300-3 Ag 14 '13
 Large clam-shell dredges; levee building methods and standards in California, F. H. Tibbetts, il map Eng N 70:456-9 S 4 '13
 Mining gold by proxy, A. L. Dahl, il Sci Am S 75:321 My 24 '13
 Natoma no. 7, a California all-steel dredge, L. H. Eddy, il Eng & Min J 96:673-5 O 11 '13
 Natoma no. 10; an all steel dredge, L. H. Eddy, il Eng & Min J 95:1079-83 My 31 '13
 New design of centrifugal dredging pump, H. S. New, il Eng N 69:31-2 Ja 2 '13
 New gold dredges in Alaska, L. H. Eddy, il Eng & Min J 95:211-3 Ja 25 '13
 Performance of Elliott dredge Wahalak, il Int Marine Eng 18:199-200 My '13
 Quick-acting steam-operated trip for dredge dippers; Panama canal, plan Eng N 69:569-70 Mr 20 '13
 Repairing a California gold dredge, L. H. Eddy, Eng & Min J 96:340 Ag 23 '13
 Righting an overturned gold dredge, L. H. Eddy, il Eng & Min J 96:773-6 O 25 '13
 Steam trip for dredge bucket, plan Eng Rec 67:93 Ja 25 '13
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 Tyne improvement bucket dredger, F. C. Coleman, il Int Marine Eng 18:198 My '13

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- Boring a large compression coupling, A. H. Myers, diag Mach 19:801-2 Je '13
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- Adzing and boring machines, il Ry Age 54: 1094-5 My 16 '13
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 Cross-drilling and milling attachments, D. T. Hamilton, il Mach 19:619-22 Ap '13
 Device for speeding up twist drills, il Iron Age 91:1287 My 29 '13
 Difficult boring operation, W. E. Fladd, diags Mach 19:465 F '13
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 Drilling a crankcase in seven minutes, il Automobile 29:232 Ag 7 '13
 Drilling and milling in the shops of the Winston motor car co., Cleveland, F. H. Colvin, il Am Mach 38:138-40 Ja 23 '13
 Drilling-machine operations and tools, C. F. Scribner, diags Am Mach 38:813-4 My 15 '13
 Duplex back-gear drilling machine, diags Iron Age 91:1363 Je 5 '13
 Duplex horizontal drilling machines, il Am Mach 38:793-4 My 8 '13
 Flynn combination drilling and boring chucks, il Mach 19:558-9 Mr '13
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 Four-spindle flue sheet drilling machinery; Foote-Burt co., Cleveland, il Iron Age 92: 955 O 30 '13
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 Garvin no. 1-S duplex drill, il diag Mach 19: 813-4 Je '13
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- High-power universal portable electric drills. il Elec R & W Elec'n 62:110-1 Ja 11 '13
 High speed drilling attachment. il diag Iron Tr R 52:1234 My 29 '13
 Improved machine drill; heavy-feed Vaulchain drill adapted to economical metal cutting. A. C. Vaulchain and H. V. Wille. plans Eng M 44:622-4 Ja '13
 Kokomo 25-inch upright drilling machine. il Mach 19:404-5 Ja '13
 Langelier drill for roller bearing cages. il diag Mach 20:65-6 S '13
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 Machine for drilling tell-tale holes in stay-bolts. P. R. Duffey. diags Am Eng 87:252 My '13
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 Moline boring and drilling machine. il Mach 19:62 S '12
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 Novel multiple drill head for roller bearings. Sci Am 109:268 O 4 '13
 Pawling & Harnischfeger co. horizontal drilling and boring machine. il Am Eng 87: 99-100 F '13
 Pneumatic chuck for staybolt drilling. J. C. Brekenfeld. il diag Am Eng 87:247 My '13
 Portable boring, drilling and milling machine. il Iron Age 91:583 Mr 6 '13
 Portable radial drilling machine. il Iron Age 92:1274 D 4 '13
 Quantity production with modern gang drills. il Iron Tr R 52:1115-9 My 15 '13
 Radial drill of high capacity. mfg. by Fosdick machine tool co. il Iron Age 92:663 S 25 '13; Ry Age (Mech ed) 87:619-20 N '13
 Radial drilling machine of German design. Mach 19:69-70 S '12
 Rockford 14-inch motor-driven drill. Mach 19: 64 S '12
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 Six-foot radial drilling machine; Drees machine tool co., Cincinnati. il Iron Age 92: 705 O 2 '13; Ind Eng 13:486-7 N '13
 Special machines used by the Hoeder mfg. co. in the manufacture of drilling machines. P. T. Hamilton. il Mach 19:931-3 Ag '13
 Taper boring and turning attachments. A. A. Dowd. diags Mach 20:265-71 D '13
 3-ft. heavy radial drilling machine. il Iron Age 92:227 Jl 31 '13
 22-in. all-gear drilling machine. il Iron Age 92:1281 D 4 '13
 Twist drill and steel wire gages. J. R. Allan. Mach 19:519 Mr '13
 Use of turntable in post drilling operations. il Iron Tr R 52:1182-4 My 22 '13
 Vaulchain drill; discussion of paper by A. C. Vaulchain and H. V. Wille. Am Soc M E J 35:642-8 Ap '13
 Washburn no. 2 high-speed sensitive drill. il Mach 19:395-6 Ja '13

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- How concrete drinking fountains are made and what they cost. il plan Concrete Cem 2:268-9 Je '13
 Memorial drinking fountain of reinforced concrete, Boston. il Eng Rec 67:215 F 22 '13
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- Experiments on liquid drops. C. R. Darling. il Sci Am S 75:236 Ap 12 '13
 Experiments on liquid globules and columns; motions displayed by drops of liquid. C. R. Darling. il Sci Am S 75:340-1 My 31 '13

Dry batteries. *See* Electric batteries

Dry-blast process

- Drying air for the blast furnace. diags Iron Age 92:654-5 S 25 '13
 Economy of dry blast. Eng & Min J 96:300 Ag 16 '13
 Economy of dry blast. Iron Age 91:1183-4 My 15 '13
 Gayley dry blast process. H. M. Howe. Met & Chem Eng 11:147-8 Mr '13
 Story of the dry-blast process. J. Gayley. Met & Chem Eng 11:71-4 F '13

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Dry rot

- Dry rot in construction timber. Iron Age 91: 866 Ap 3 '13
 Dry rot in floors. D. E. Hooker. Eng Rec 68:26-7 Jl 5 '13
 Dry rot in timber used in slow-burning construction. F. J. Hoxie. Am Soc M E J 35: 435-41 Mr '13

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Drying apparatus

- Explosion of a rotary steam dryer. il Locomotive 29:145-7 Ja '13
 Mengon drier for molds. il diag Iron Age 91: 303-4 Ja 30 '13

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- Anesthetizing machine of Dubois. J. Boyer. il Sci Am 108:468 My 24 '13

Duff manufacturing company, Pittsburgh

- Steel sash, wire partitions, steel bins, Central oil distribution and telpherage transportation for Barrett jack factory. il plan Iron Age 91:875-81 Ap 10 '13

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- Sewage disposal and water supply at Duluth. J. Wilson. Munic Eng 44:347-8 Ap '13

Duluth, Winnipeg & Pacific railway

- Construction. il Ry & Eng R 53:143-4 F 15 '13

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- Electric dumb-waiters. Elec W 62: 604-5 S 20 '13

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- Air-operated dump car. il diag Eng N 69: 1162-3 Je 5 '13
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 Devices for bucket dumping. J. R. McFarland. diag Eng & Min J 95:659 Mr 29 '13
 Dumper for mine cars. plans Colliery 33:591 My '13
 End dump bodies for commercial vehicles. R. Babcock. il Sci Am 108:372 Ap 26 '13
 Kelly power dump. il Munic Eng 45:494 N '13
 Kilbourne & Jacobs automatic air dump car. il Ry Age 55:295 Ag 15 '13
 New hydraulic dumping body. il Automobile 29:216-7 Jl 31 '13
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 Three-wheeled motor dump cart; built by Third avenue railway of New York city. il Eng Rec 67:35 Ja 11 '13

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- Palatial country house in Delaware; the A. I. duPont residence, Carrère and Hastings, architects. il Arch Rec 34:337-47 O '13

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- Non-corrosive iron alloy. Eng N 69:563 Mr 20 '13

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- Dussaud's cold light. J. Boyer. il Sci Am 108:489 My 31 '13

Dust

- Effect of incombustible dusts on the explosion of gases. H. B. Dixon and C. Campbell. Sci Am S 76:118-9 Ag 23 '13

Dust—*Continued.*

Methods for investigating and recording atmospheric impurities, including the soot and dust suspended in the atmosphere. J. B. C. Kershaw. *diags Met & Chem Eng* 11:337-42 Je '13

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Dust prevention

Progress reports of experiments in dust prevention and road preservation, 1912. U S Pub Road Circ 39:1-51 '13

See also Roads, Oiled

Dust removal

Air washer vs. centrifugal collector on dust-collecting systems. J. D. White. *Power* 38: 572 O 21 '13

Air washers and dust removal. *il Heat & Ven* 10:24-7 F '13

Corona method of removing smoke and dust from gases. W. W. Strong. *il Sci Am S* 76: 156 S 6 '13

Dust control in cement manufacture: Cottrell electrical precipitation processes. W. A. Schmidt. *Eng M* 46:121-3 O '13

Dust in Johannesburg mines. *Eng & Min J* 96: 777 O 25 '13

Dust problem in a polishing and buffing room. T. C. Eichstaedt. *il Metal Ind n s* 11:125-6 Mr '13

Exhaust system for removal of emery grindings. *il Iron Tr R* 52:806 Ap 3 '13

Exhaust systems for grinding, polishing, and buffing wheels, specifications prescribed by N. Y. state dept. of labor. *Mach* 19:741-3 My '13; Same cond. *Ind Eng* 13:211-2 My '13

Exhaust systems for grinding wheels. *Ry Age* (Mech ed) 87:305-6 Je '13

Filter for compressed air. *diag Eng & Min J* 95:615 Mr 22 '13

German methods of alaying dust from rock drills. *il Eng & Min J* 96:1621 N 29 '13

Plan of collecting fine dust from a copper reduction plant. *Eng N* 69:763 Ap 17 '13

Precipitation of smoke and suspended dust by electrostatic methods. H. N. Holmes. *plan Elec W* 61:401-2 F 22 '13

Requirements for exhaust systems laid down by New York state department of labor. *Heat & Ven* 10:49 Ap '13

Rules for dust collection and shop ventilation. *Ind Eng* 13:390 S '13

Specifications for exhaust systems. *Foundry* 41:206a, 254a, 280a, 326a My-Ag '13

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Dwelhauvers-Dery, Victor Auguste Earnest, 1836-1913

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Dynamite

Analysis of black powder and dynamite. W. O. Snelling and C. G. Storm. *il U S Bur Mines Bul* 51:6-63 '13

Dynamite grade markings. F. H. Gunsolus. *Eng & Min J* 95:772-3 Ap 12 '13

Nonfreezing carrier for dynamite. *il Eng N* 69:169-70 Ja 23 '13

Notes on dynamite consumption. *Eng & Min J* 95:24 Ja 4 '13

What is dynamite? F. H. Gunsolus. *Colliery* 34:181 O '13

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Dynamite storage

Underground magazines in rock for storing explosives. *il plan Eng Rec* 67:159 F 8 '13

Dynamometer

Dynamometer wagon for road-resistance tests. *il Eng Rec* 68:631-2 D 6 '13

Dynamometers vs. road-testing. *Automobile* 28:948 My 1 '13

Milling machine dynamometer. R. Poliakoff. *il diag Mach* 26:106 N '13

Prony brake and its use. H. M. Phillips. *plan Power* 37:688-90 My 13 '13

Recording transmission dynamometer. D. D. Huyett. *il Power* 37:462 Ap 1 '13

Results of tests of Spiro turbines. H. Coward. *il plan Power* 37:736-7 My 27 '13

Torsion-dynamometers and their field. *diag Automobile* 29:128-9 S 4 '13

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Dynamos

Armature-pind relations in synchronous machines. J. H. Morecroft. *Elec W* 62:1106-8 N 29 '13

Care of the dynamo on board ship. V. White. *Int Marine Eng* 18:402-4 S '13

Cleveland electric illumination company's direct current generators. *il Iron Tr R* 52: 691-2 Mr 20 '13; *Power* 37:415 Mr 25 '13

Discussion on group IV papers (Miscellaneous subjects relating to rating). (See Proceedings for February, 1913) *Am Inst E E Pro* 32:2112-21 N '13

Discussion on operating characteristics of large turbo-generators (Field), and the transient reactions of alternators (Burgin and Whitehead). *Am Inst E E Pro* 32:99-110 Ja '13

Dynamo and motor characteristics. C. P. Poole. *diags Power* 37:115-S Ja 28 '13

Dynamo and motor troubles. R. L. Mossman. *plan Power* 37:526-S Ap 15 '13

Dynamo-electric lighting for automobiles. A. E. Waller. *Am Inst E E Pro* 32:1972-85 N '13; Same. *Sci Am S* 76:391-5 D 20 '13

Effect of room temperature on temperature rise of motors and generators. M. W. Day and R. A. Beckman. *Am Inst E E Pro* 32:116-26 F '13

Experimental determination of the regulation of alternators. A. B. Field. *Am Inst E E Pro* 32:600-5 F '13

Fire hazard in turbo-generators. *Elec W* 62: 1200-1 D 13 '13

Fire hazard in turbo-generators. G. S. Lawler. *Am Soc M E J* 35:1093-7 Ji '13; Same cond. *Power* 38:890 D 23 '13

French generators for lighting of cars with novel means for equalizing voltage. *diags Automobile* 29:668-70 O 9 '13

Generation and transmission of hydroelectric power. E. A. Lof. *il Eng M* 44:552-61 Ja '13

Generator and prime mover capacities. D. R. Rushmore and E. A. Lof. *Am Inst E E Pro* 32:740-20 Mr '13

Generators for hydro-electric plants. *il Iron Tr R* 53:835-6 N 6 '13

High-frequency alternator. J. L. Hogan, jr. *il Elec W* 61:1045-6 My 17 '13

High-frequency generator for wireless telegraphy and telephony. E. F. W. Alexander-son. *il Sci Am S* 75:328-30 My 24 '13

High-speed turbo-alternator design. *Elec W* 61:183-4 Ja 25 '13

High speed turbo-alternators—designs and limitations. B. G. Lamme. *il Am Inst E E Pro* 32:2-39 Ja '13; Discussion. 32:932-72 Ap '13

Hunting of generators. B. Dawson; V. K. Stanley. *Power* 38:469 S 30 '13

Internal heating of stator coils. R. B. Williamsen. *Am Inst E E Pro* 32:438-48 F '13

Invention of the dynamo. *Elec W* 61:253-4 F 1 '13

Large direct-current generators. *il Iron Age* 91:658 Mr 13 '13

Large direct-current units for Cleveland electric illuminating company. *il Elec W* 61: 268 Ja 25 '13

Parallel operation of alternators with composite windings. R. L. Mossman. *il Elec W* 61:56-7 Ja 4 '13

Potential waves of alternating-current generators. W. J. Foster. *Am Inst E E Pro* 32:208-21 F '13

Regulation of definite pole alternators. S. H. Mortenson. *Am Inst E E Pro* 32:202-8 F '13

Trouble with three-wire generators in parallel. H. R. Mason. *diag Power* 38:331 S 2 '13

Turbo-alternator design and construction. *Elec Ry J* 41:97 Ja 18 '13

Voltage on short-circuit. *Power* 37:896 Je 24 '13

Dynamoes—Continued.

Waterwheel generators. *il* Power 33:568-9 O 21 '13

See also Automobiles—Electric equipment; Commutators; Electric motors; Phase advancers

Losses

Load losses of alternating current generators. W. J. Foster and E. Knowlton. *Am Inst E E Pro* 32:446-61 F '13

Losses in turbo-alternators. B. G. Lamme. *Power* 37:118 Ja 28 '13

Testing

Alternator testing. F. S. Barton. *Power* 37:565-8 Ap 22 '13

Comparison of methods of loading large a-c. and d-c. generators and rotary converters for factory temperature tests. F. D. Newbury. *Am Inst E E Pro* 32:660-77 F '13

Comparison of methods of making load tests on A-C generators and on induction motors. E. F. Collins and W. E. Holcombe. *Am Inst E E Pro* 32:190-265 F '13

Discussion on group III papers (Methods of testing apparatus for performance). (See *Proceedings for February, 1913*) *Am Inst E E Pro* 32:2054-72 N '13

E**Earth**

Radium and the evolution of the earth's crust. A. Holmes. *Sci Am S* 76:67 Ag 2 '13

See also Earthquakes; Geology; Meteorology; Mines and mineral resources; Ocean

Age

Length of geological epochs: radium as the clock of ages. *Sci Am S* 75:374 Je 14 '13

Earthquakes

Earthquakes and the Panama canal. D. F. MacDonald. *il* *Sci Am* 109:303-5 O 18 '13

Earthquakes in Japan. B. Lawson. *il* *Sci Am S* 76:100-1 Ag 16 '13

Is the Panama canal liable to damage by earthquakes? C. Davison. *Sci Am* 109:454 D 13 '13

New seismology. J. Milne. *Sci Am S* 76:151 S 6 '13

Earthwork

Convenient earthwork table. P. B. Hill. *Eng N* 70:825-6 O 23 '13

Methods of handling light earthwork. H. C. Landon. *il* *Ry Age* 55:287-8 Ag 15 '13

See also Dams; Embankments; Excavation; Foundations; Tunnels and tunneling

Slides

Truth about the Culebra cut slides, Panama canal. A. S. Zinn. *diag Eng N* 70:406-8 Ag 28 '13

Eastman Kodak company

Judicial decision involving the camera film. *Sci Am* 109:163 Ag 30 '13

New laboratory for research in optics and photography. *il* *Sci Am S* 76:56-7 Jl 26 '13

Three years of accident prevention. *il* *Iron Age* 91:1058-61 My 1 '13

Ecclesiastical architecture. *See* Church architecture**Econometer**

CO₂ diagrams from actual practice. A. Beament. *Power* 37:409-11 Mr 25 '13

Economic conditions

Growth of modern industrialism. E. C. Eckel. *Eng M* 45: 321-33 Je '13

See also Business conditions; Distribution (economics); Tariff—United States

Economics

See also Business; Cooperation; Cost; Cost of living; Distribution (economics); Government regulation of industry; Industry; Labor and laboring classes; Strikes; Tariff; Taxation; Wages

Economizers, Fuel. *See* Fuel economizers**Eddy-currents**

Hysteresis and eddy-current losses in transmission towers. *Elec W* 62:1108-9 N 29 '13

Edgartown, Massachusetts

Doorways of an old whaling village. G. N. Rosé. *il* *Arch Rec* 33:55-65 Ja '13

Edison electric illuminating company of Boston

System of service annuities. *Elec W* 61:1074-5 My 24 '13

Edison illuminating companies. *See* Association of Edison illuminating companies**Editing**

Editing in the government printing office. F. A. Kidd. *il* *Inland Ptr* 50:559 Ja '13

Educated horses. *See* Horses, Educated**Education**

Daniel Boone idea in education: school system based on voluntary muscular work. *il* *Sci Am* 109:361 N 8 '13

Present day need of vocational education. T. W. Robinson. *Iron Age* 92:1048-53 N 6 '13

Teaching from the child's point of view: a new science created by Prof. Ernst Meumann. P. R. Radosavljevich. *il* *Sci Am* 109: 141 Ag 23 '13

See also Classical education; Colleges and universities; Corporation schools; Engineering education; Evening and continuation schools; Industrial education; Railroad education; Technical education; Trade schools

Education, Classical. *See* Classical education**Education, Cooperation in.** *See* Cooperation in education**Education, Technical.** *See* Technical education**Education for business.** *See* Business, Education for**Education of employees.** L. Galloway. *J Account* 15:35-52 Ja '13**Efficiency, Industrial**

Automatic rating of workmen; Springfield (Mass.) armory's system. *Iron Age* 91:811-2 Ap 3 '13

Blocking the other fellow's efficiency. *Iron Age* 91:20-1 Ja 2 '13

Bonus and rating for works executives. J. Nelson. *Iron Age* 91:1159-62 My 15 '13

Building a cost system. B. A. Franklin. *Eng M* 46:356-64 D '13

Causes of failures in efficiency work. F. W. Collins. *Eng M* 45:862-6 S '13

Chemical engineer and industrial efficiency. W. M. Booth. *Sci Am S* 75:210-1 Ap 5 '13

Efficiency and the railway wage problem. F. L. Jandron. *Eng M* 44:241-7 N '12

Efficiency and the worker. H. R. Callaway. *Eng M* 45:715-7 Ag '13

Efficiency of labor—a difficult problem for the contractor. *Eng Rec* 67:510 My 10 '13

Efficiency of large corporations: proposed investigation by Dept. of commerce. *Iron Age* 92:1293 D 18 '13

Executive efficiency. *Automobile* 28:479 F 13 '13

Fields for future expansion of efficiency engineering. F. W. Collins. *Eng M* 46:249-52 N '13

Hunger and shop efficiency. *Iron Age* 91:1072 My 1 '13

Hunger, rest and shop efficiency. M. H. C. Brombacher. *Iron Age* 91:1126 My 8 '13

Measuring efficiency on a profit basis. E. B. Passano. *Iron Tr R* 52:682-4 Mr 20 '13

Office efficiency as it affects the men. L. O. Fisher. *J Account* 16:11-21 Jl '13

Personal error and efficiency engineering. *Sci Am* 108:466 My 24 '13

Personnel of the organization. H. Emerson. *Iron Tr R* 52:633-4 Mr 13 '13

Problem of quality of workmanship. B. A. Franklin. *Eng M* 46:201-6 N '13

Production largely increased by a simple reorganization. B. A. Franklin. *il* *Eng M* 45: 817-21 S '13

Success secured by study of workmen's tendencies. B. A. Franklin. *Eng M* 45:669-73 Ag '13

See also Scientific management

Efficiency society

Concerning the Efficiency society. H. F. J. Porter. *Eng N* 69:434 F 27 '13

Efficiency society—Continued.

First annual meeting, 1913. Eng N 69:272-3 F 6 '13

Eggs

Bacteria in eggs. Sci Am S 76:80 Ag 2 '13

Egypt**Antiquities**

Mystery of the predynastic furnace solved. M. N. Buckman. Il Sci Am S 76:101-2 Ag 16 '13

Progress in Egyptian exploration. M. N. Buckman. Il Sci Am S 76:188-9 S 20 '13

Industries and resources

Egyptian minerals. Sci Am 109:70 Jl 26 '13

Egyptian language. See Hieroglyphics**Eiffel, Alexandre Gustave, 1832-**

Builder and authority on aerodynamics. por Sci Am S 76:121 Ag 23 '13

Eight-hour day. See Hours of labor**Ejectors**

Efficiency of a steam ejector. F. M. Thomas. Power 38:322 S 2 '13

Kinetic air ejector. Il Power 38:674-5 N 11 '13

Elasticity

Definition of young moduli for very deformable bodies. H. Bouasse. Am Soc M E J 35: 1054-6 Je '13

Elastic hysteresis. E. B. Smith. Eng Rec 67: 561-2 My 17 '13

Magnetism and elasticity. F. J. Kean. Il Elec W 61:569-70 Mr 15 '13

See also Strains and stresses

Electric accidents. See Electricity, Injuries from**Electric alarms**

Engine-room alarm equipment. plan Elec W 61:208-9 Ja 25 '13

Fire and police alarm systems of Ft. Worth. W. R. Bideker. Il Munic Eng 45:130-2 Ag '13

See also Fire alarms

Electric apparatus and appliances

Applications of electromagnetic tripping devices. G. M. Meyneke. Mach 20:88-90 O '13

Electrical apparatus. Elec W 61:1216-7 Je 7 '13

Electrical device for thawing out frozen water pipes. C. P. Hoover. Il Eng Rec 67:217-8 F 22 '13

Electricity for office appliances. Elec W 62: 606 S 20 '13

Influence of temperature, barometric pressure and humidity of the cooling medium on temperature rise of stationary induction apparatus. J. J. Frank and W. O. Dwyer. Am Inst E E Pro 32:338-62 F '13

Long-distance water-level indicator. A. V. Youens. diag Power 38:888-90 D 23 '13

Method of rating electrical apparatus. W. L. Merrill, W. H. Powell and C. Robbins. Am Inst E E Pro 32:127-36 F '13; Discussion. 32:1679-1737 Ag '13

New apparatus and appliances. See weekly numbers of Electrical world

New baseball indicator. G. E. Mitchell. Il Sci Am 109:109 Ag 9 '13

Precipitation of smoke and suspended dust by electrostatic methods. H. N. Holmes. plan Elec W 61:401-2 F 22 '13

Punch and die for forming electric terminals. A. L. Senesac. Il diags Mach 19:671-2 My '13

Retail dealer and electric appliance sales. Elec W 61:349 F 15 '13

Self-contained electric pipe-thawing outfit. Elec W 61:420 F 22 '13

Uses of artificial insulating materials in the construction of electrical apparatus. H. Passavant. Sci Am S 76:47-8 Jl 19 '13

Wave form distortions and their effects on electrical apparatus. P. M. Lincoln. Am Inst E E Pro 32:378-88 F '13

See also Armatures; Automobiles—Electric equipment; Condensers (electricity); Dynamos; Electric batteries; Electric circuit breakers; Electric equipment; Elec-

tric furnaces; Electric fuses; Electric instruments; Electric lamps; Electric machinery; Electric meters; Electric motors; Electric protective apparatus; Electric railroads—Equipment and supplies; Electric signals; Electric standards; Electric starters; Electric transformers; Electricity in mining; Electricity in the home; Electricity on the farm; Electromagnets; Fans, Electric; Fire alarms; Rheostats; Spark plugs; Switchboards; Synchronizing; Transformers

Losses

Discussion on group II papers (Methods of determining losses in apparatus). (See Proceedings for February, 1913) Am Inst E E Pro 32:2007-52 N '13

Losses in transformers. W. W. Lewis. Am Inst E E Pro 32:478-504 F '13

Stray losses in transformers. C. Fortescue and W. M. McConahey. Am Inst E E Pro 32:308-21 F '13

See also Dynamos—Losses; Electric motors—Losses

Standardization

Midwinter convention, A. I. E. E., New York, Feb., 1913. Elec W 61:515-22 Mr 8 '13

Electric arc

See also Electric lamps, Arc

Electric automobiles. See Electric vehicles**Electric batteries**

Battery for experimental use. H. E. Dey. Il Elec W 62:1210-1 D 13 '13

Billiter alkali-chlorine cells. A. J. Allmand. Il Met & Chem Eng 11:19-21 Ja '13

Dry batteries and how to make them. Sci Am 108: 435 My 10 '13

Electricity direct from coal: problem of the galvanic cell with carbon consumption. E. Baur. Sci Am S 75:346-8 My 31 '13

Ignition from dry cells. A. L. Brennan, jr. Power 37:17-8 Ja 7 '13

Improved primary wet cell. Elec W 62:152 Jl 19 '13

New electrolytic alkali cell. J. B. C. Kershaw. Il Sci Am 109:131 Ag 16 '13

Production of caustic alkali and bleach. D. J. Allmand. Il Sci Am S 76:22-3 Jl 12 '13

Test of an Edison primary battery (Edison-Lalande cell). D. Sanford. Met & Chem Eng 11:129-30 Mr '13

See also Storage batteries

Electric bells

See also Electric signals

Electric cables

Armoring electric cables in shafts. Eng & Min J 95:1145-6 Je 7 '13

Current rating of electric cables. R. W. Atkinson and H. W. Fisher. Am Inst E E Pro 32:566-73 F '13; Discussion. 32:1859-67 S '13

Dessau-Bitterfeld 60,000-volt cable. Elec Ry J 41:369 Mr 1 '13

Discussion on Notes on underground conduits and cables (Mosman). Am Inst E E Pro 32:794-821 Mr '13

Electric cables for mines. W. White. Mines & Min 33:309-10 Ja '13

Handling telephone cables in the mine. G. Brown. Il Eng & Min J 96:1216-8 D 27 '13

Heating of cables carrying current. S. Dushman. Am Inst E E Pro 32:164-88 F '13

Novel designs of cable clamps and cable brackets. Il Elec Ry J 41:976 My 31 '13

Progress of high-tension cables. Elec W 61: 1071 My 24 '13

Steel-taped cables for underground wires. Munic Eng 44:47-3 Ja '13

Street lighting supplied from steel-taped cables underground. Il Elec R & W Elec'n 62: 45 Ja 4 '13

See also Cables, Submarine; Electric distribution; Electric wire and wiring; Insulation

Electric carriages. See Electric vehicles

- Electric carrier for mail or package freight.** *il Eng Rec* 68:387 O 4 '13
- Electric carrier railways for rapid transfer of mail and express.** *il Eng N* 70:637-9, 702-4 O 2-9 '13
- Electric carrier system.** *il Ry Age* 55:624-5 O 3 '13
- Electric cells.** See **Electric batteries**
- Electric Christmas trees**
Electric Christmas tree in New York. *il Elec R & W Elec N* 62:25 Ja 4 '13
- Electric circuit breakers**
Discussion on group IV papers (Miscellaneous subjects relating to rating). (See Proceedings for February, 1913) *Am Inst E E Pro* 32:2674-9 N '13
Montreal apparatus for testing circuit breakers. *il diag Elec Ry J* 42:1214 D 13 '13
oil circuit breakers for large powers and high potentials. K. C. Randall. *il Am Inst E E Pro* 32:1886-2 O '13
Rating of oil circuit breakers with reference to rupturing capacity. G. A. Burnham. *Am Inst E E Pro* 32:278-80 F '13
Troubles due to non-use of circuit-breakers. F. W. Harris. *Elec W* 61:942 My 2 '13
- Electric companies.** See **Electric service companies**
- Electric conductivity**
Conduction of electricity through an insulator. P. S. Helmick. *Sci Am S* 75:269 Ap 26 '13
Conductivity of fluosilicic acid and lead fluosilicate. T. A. Patterson. *Met & Chem Eng* 11:670-2 D '13
Electricity in mines. H. S. Webb. *Colliery* 33: 489-92 Ap '13
See also **Electric conductors**
- Electric conductors**
Electrolytic corrosion of earthed metallic conductors. *Elec Ry J* 42:818-20 I 16 '13
Transmission line conductors. *Eng & Min J* 95:1048 My 24 '13
See also **Electric cables**; **Electric distribution**; **Electric transmission**; **Electric wire and wiring**; **Insulation**
- Electric conduits**
Discussion on Notes on underground conduits and cables (Mosman). *Am Inst E E Pro* 32:784-821 Mr '13
Increased conduit construction with reduced restrictions. *Elec W* 61:629 Mr 22 '13
Iron pipe used for electric conduit. O. W. Storey. *Met & Chem Eng* 11:190-4 Ap '13
Notes on underground conduit construction. G. F. Speer. *il Elec W* 61:52-4 Ja 4 '13
Standard sizes of conduits for electric conductors. *Eng N* 69:174 Ja 23 '13
- Electric controllers**
Constant voltage transmission. H. B. Dwight. *Am Inst E E Pro* 32:1358-72 Je '13; Excerpts. *Power* 38:54-5 J1 S '13
Control of fire-pump motors. *il Iron Age* 92:507 S 4 '13
Double-drum controller for crane motors. *Elec Ry J* 41:387 Mr '13
Dynamic braking hoist controller and its application to mill cranes. H. F. Stratton. *il Iron Tr R* 52:85-93 Ja 2 '13
Fire pump motors of alternating current type. H. P. Reed. *il Iron Tr R* 53:879-80 N 13 '13
Large automatic controller. *il Elec W* 61:1003-4 My 10 '13
Leonard patent for electric control. *diags Elec W* 62:318-9 Ag 16 '13
See also **Electric motors**; **Rheostats**
- Electric converters.** See **Electric current converters**; **Rotary converters**
- Electric cookers**
Automatic electric cooker. *il Elec W* 61:367 F 15 '13
Electric fireless cooker. *il Elec W* 62:397 Ag 23 '13
- Electric cookery**
Costs of one year's electric cooking and heating. *Elec W* 62:643-4 S 27 '13
Electric cooking at Boston engineers' club. *il Elec W* 61:1173-4 My 31 '13
Recent tests of the cost of electric cooking. *Sci Am S* 75:319 My 17 '13
Value of a cooking load. R. B. Mateer. *Elec W* 62:1270-1 D 29 '13
- Electric cranes.** See **Cranes, derricks, etc.**
- Electric current converters**
Automatic substations. H. R. Summerhayes. *il Am Inst E E Pro* 32:1236-50 Je '13; Discussion. 32:1266-71 D '13
Frequency changers and synchronous converters. E. A. Lof. *il Eng M* 45:198-208 My '13
Synchronous converters. E. A. Lof. *Mach* 26:285-6 D '13
Turbo converter. *il Power* 37:15-6 Ja 7 '13
See also **Electric current rectifiers**; **Electric transformers**; **Rotary converters**
- Electric current rectifiers**
Advancement of the mercury arc rectifier. H. F. Perkins. *il Met & Chem Eng* 11:491-4 S '13
Current rectifiers. J. A. Randolph. *diags Power* 38:750-2 N 25 '13
Electrolytic rectifier for the garage. *il Sci Am* 109:246 S 27 '13
Mercury-arc rectifier. H. F. Perkins. *il diags Elec W* 62:548 S 13 '13
Motor-generators and rectifiers. *il Automobile* 28:34-6 Ja 2 '13
- Electric currents**
Direct versus continuous current. *Sci Am S* 75:13 Ja 4 '13
Effect of a short-circuited secondary on an oscillating circuit. L. Cohen. *Elec W* 62: 879-900 N 1 '13
Effective resistance and reactance. W. V. Lyon. *Elec W* 62:1006-8 N 15 '13
Hysteresis and eddy-current losses in transmission towers. *Elec W* 62:1108-9 N 29 '13
Propagation of high-frequency electric waves along wires. J. S. Stone. *Sci Am S* 75: 309-11, 323-5 My 17-24 '13
See also **Electric conductivity**; **Electric conductors**; **Electric distribution**; **Electric measurement**; **Electric testing**; **Electric transformers**; **Electric transmission**; **Stray currents**; **Telephone**
- Electric currents, Alternating**
Analysis of alternating-current waves by the method of Fourier, with special reference to methods of facilitating computations. F. W. Grover. *U S Bur Stand Bul* 9:567-646 D 15 '13
See also **Electric distribution**; **Electric transmission**; **Electric waves**
- Electric discharges**
Acetylene-electric flame. C. F. Lorenz. *il Elec W* 61:511-5 Mr 8 '13
Brush discharge. A. Vosmaer. *il Met & Chem Eng* 11:623-9 N '13; Same. *Sci Am S* 76: 380-3 D 13 '13
Corona method of removing smoke and dust from gases. W. W. Strong. *il Sci Am S* 76: 156 S 6 '13
Positive and negative corona and electrical precipitation. W. W. Strong. *Am Inst E E Pro* 32:1391-14 Je '13; Discussion. 32: 2300-15 D 13
See also **Electric sparks**; **Radioactivity**
- Electric distribution**
Convenient form of continuous-current artificial line. A. E. Kennelly. *il Elec W* 61: 1311-2 Je 14 '13
Distribution-line construction problems. *Elec W* 61:360 F 15 '13
Distribution of electrical energy. H. B. Gear. *Elec W* 61:10-1 Ja 4 '13
Electric field distribution. W. S. Franklin. *J Fr Inst* 176:81-76 J1 '13
Electric power distribution in steel mills. S. C. Coey. *Iron Tr R* 52:410-2 F 13 '13
Electric power in Cleveland. *il map plans Elec Ry J* 41:618-23 Ap 5 '13
Feeder tests on the San Diego electric railway. H. Macnutt. *diags Elec Ry J* 42:141-3 J1 26 '13
Feeding street intersections. G. H. McKelway. *plan Elec Ry J* 41:504 Mr 15 '13

Electric distribution—Continued.

- Flow of water from pumps used to explain various systems of electric distribution. L. R. Pomeroy, diags. *Am Eng* 87:182-4 Ap '13
- Grounded neutral. *Elec W* 61:227 F 1 '13
- High-tension distribution by one-wire grounded system. J. A. Cavanaugh, *Power* 38:503 O 7 '13
- Induction regulators. J. A. Randolph, diags. *Power* 38:919-21 D 30 '13
- Lamp operation due to accidental ground. S. B. Hood, *Elec W* 61:1098 My 24 '13
- Locating grounds and open circuits on series arc systems. *Elec W* 62:806 O 18 '13
- Meters on two-phase circuits. F. V. Magalhaes, diags. *Elec W* 61:3372 Je 21 '13
- Niagara power for the International railway company, diags. *Elec Ry J* 42:420-2 S 13 '13
- Present status of grounded secondaries. *Elec W* 61:303-1 F 8 '13
- Requirements for proper grounding. *Elec W* 61:357 F 15 '13
- Some power distribution problems. H. J. Childs, *Elec Ry J* 41:421-2 Mr 8 '13
- Three wire system with rotary balancer. A. M. Bennett, plan *Power* 37:490-3 Ap 8 '13
- Tirrell regulator. J. A. Randolph, diags. *Power* 38:501-3 O 7 '13
- Weak spots in the distribution of electrical energy. *Eng Rec* 67:255 Mr 8 '13

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Electric driving

- Alternating-current drive of a newspaper plant, Jersey City, N. J. A. B. Spaulding, *il Elec W* 62:239 Ag 2 '13
- Analysis of cost of electric drive in a foundry. *Elec W* 62:537 S 13 '13
- Application of electric drive in greenhouses. *il Elec W* 62:841-3 O 25 '13
- Application of motors in mining and mill installations in Colorado. W. J. Canada, *Elec W* 61:724-7 Ap 5 '13
- Driving line-shafting. G. N. Van Derhoef, *Mach* 20:197-8 N '13
- Economy of electric drive for air-compressor service. *Elec W* 61:1418 Je 28 '13
- Electric drive for reversing rolling mills. J. A. Seager, diags. *Iron Tr R* 53:335-7 Ag 21 '13
- Electric drive for rolling mills. B. Wiley, *Iron Age* 92:846-8 O 16 '13
- Electric drive in machine shops. *Elec W* 62:780-1 O 18 '13
- Electric drive in machine shops. C. Fair, *Am Inst E E Pro* 32:1928-33 O '13; Same, *Ind Eng* 13:482-3 N '13
- Electric motor drive in a stationery factory. *il Elec W* 62:1113-5 N 29 '13
- Electric operated copper converters. G. B. Rosenblatt, *il Eng & Min J* 95:901 My 3 '13
- Electric power in foundry operations. H. F. Stratton, *il Iron Tr R* 53:917-24, 941 N 29 '13; Same, *Foundry* 41:407-15 O '13
- Electrical data from some Colorado mills. *Eng & Min J* 95:902-4 My 3 '13
- Electrically-driven, two-high reversing mill. A. Lamberton, diags. *Iron Tr R* 52:1177-80 My 22 '13
- Electrically-operated, Canadian rolling mill, *il plans Iron Tr R* 53:17-26, 32-3 J1 3 '13
- Electrically operated factory of the Lifter ice cream co., Philadelphia, *il Elec W* 61:420-1 F 22 '13
- Electricity in the packing industry. W. D. Bearce, *il Elec W* 61:466-70 Mr 1 '13
- Electrifying a water-meter factory, plan *Elec W* 62:694-5 O 4 '13
- General electric reversing motor drive, *il Mach* 19: 399-400 Ja '13
- Investigation of cost of motor drive in a six-story factory. *Elec W* 62:381-2 Ag 23 '13
- Lo-swing lathe test on motor armature shafts, *il Mach* 19:623-5 Ap '13
- Motor drive for a 28-in. valve. J. R. Allen, plan *Power* 38:164-5 J1 29 '13

- Motor drive in a modern printing plant; Commercial pting. co., Akron, O. M. C. Turpin, *il Inland Tr* 51:532-3 J1 '13
- Motor-driven coal and ash-handling equipment at Pacific Mills, South Lawrence, Mass. *il Elec W* 62:1178-9 D 6 '13
- Motor driving in envelope factory. *Elec W* 61:1117 Je 28 '13
- Paragon system of electric drive. A. H. Allen, plan *Power* 38:264 Ag 19 '13
- Power requirements for machine tools. H. C. Spillman, *il diag Mach* 19:769-71 Je '13
- Reversing electric motor drive for planers and similar shop machinery. *il Elec R & W Elec'n* 62:112-4 Ja 11 '13; Same, *Am Eng* 87:46-8 Ja '13; Same, *Ry & Eng R* 53:16 Ja 4 '13; Same cond. *Ind Eng* 13:76-7 F '13
- Reversing motor planer drive, *il Mach* 19: 656-8 Ap '13; *Am Eng* 87:269 My '13
- Reversing motors for machine tools. C. Fair, *il Eng M* 45:119-20 Ap '13
- Steel plants electrical installations. R. L. Streeter, *Eng M* 41:362-84 D '12
- Value of motor drive for main rolls. *Iron Age* 92:752 O 2 '13

See also Electric distribution; Electric equipment; Electric motors; Electric plants; Electric power; Electric transmission

Electric elevators. See Elevators, Electric**Electric engineering**

- Changes in the National electric code. *Elec W* 61:658 Mr 29 '13
- Charles Proteus Steinmetz and electrical progress. D. S. Martin, *Sci Am S* 76:28 J1 12 '13
- Civil service examination questions for New York state. *Eng N* 70:1131 D 1 '13
- Digest of current electrical literature. See weekly numbers of *Electrical world*
- Don'ts for electricians. H. M. Nichols, *Power* 38:820-1 D 1 '13
- Electrical fallacies. A. H. Allen, *Power* 38: 165-6 J1 29 '13
- Examination questions in electrical engineering. *Eng N* 69:179 Ja 23 '13
- Joint meeting of British and French electrical engineers at Paris, May, 1913. *Elec W* 61:1349-52 Je 21 '13
- Maintaining operation during construction work. *Elec W* 61:293 Ja 25 '13
- N. E. L. A. papers and discussions at 36th annual convention, June, 1913. *Elec Ry J* 41: 1657-60 Je 14 '13
- N. E. L. A. 36th convention papers and discussions, Chicago, June, 1913. *Elec W* 61: 1213-42 Je 7 '13
- Pacific coast convention of the American institute of electrical engineers, Vancouver, B. C., Sept., 1913. *Elec W* 62:629-30 S 27 '13
- Papers and discussions at Canadian electrical assn., 23d annual convention, Toronto, 1913. *Elec W* 62:69-71 J1 12 '13
- Papers and discussions at 30th annual convention of Am. Inst. of electrical engineers, Cooperstown, N. Y., June, 1913. *Elec W* 62:15-21, 81-6 J1 5-12 '13
- Reorganization of the Department of electricity, Chicago. *Elec W* 62:222-3 Ag 2 '13
- Research laboratory of applied electricity. C. Dantsizen, *il Sci Am S* 75:261-2 Ap 26 '13
- Retrospect of the year 1912. *Sci Am* 108:2 Ja 4 '13
- 6th annual convention of the Assn. of railway electrical engineers, Chicago, Oct., 1913. *Elec W* 62:882-1 N 1 '13
- 7th annual convention of the Association of iron and steel electrical engineers, New York city, Sept., 1913. *Elec W* 62:621-2, 682-3 S 27-O 4 '13

See also Armatures; Dynamos; Electric apparatus and appliances and other headings beginning Electric; Electricity in mining; Electricity on ships; Hydroelectric plants; Telegraph; Telephone; Wireless telegraph

Law

- Construction of an overhead line upon a railroad's right of way. Maguire and Mooney, *Elec R & W Elec'n* 62:97-8 Ja 11 '13

Electric engineering—Law—Continued.

Rules of electric service in Wisconsin. Elec W 61:338 F 15 '13

See also Electric lines—Law; Electric railroads—Law

Terminology

See Electric terminology

Electric engineers

Small central station and the young technical graduate. Elec W 61:392 My 10 '13

See also American institute of electrical engineers

Electric equipment

Centralized electrical control systems for Panama locks. il Eng Rec 68:730-1 D 27 '13

Control equipment for the Panama canal locks. il Elec W 62:1317-20 D 27 '13

Electric hotel in Paris. J. Boyer. il Sci Am 109:345 N 1 '13

Electric wiring and illumination of the Continental and commercial bank bldg., Chicago. il diag Elec W 62:189-94 J1 26 '13

Electrical equipment in Lytton building, Chicago. il diag Elec W 62:25-8 J1 5 '13

Electrical equipment of a modern building: isolated 500-kw generating plant for Aeolian Hall, N. Y. il Elec W 61:395-401 F 22 '13

Electrical equipment of a modern hotel: artistic and efficient lighting scheme in the McAlpin hotel, N. Y. il Elec W 61:927-30 My 3 '13

Electrical equipment of Charles river locks. il diag Elec W 61:1355-61 Je 21 '13

Electrical equipment of industrial plants: illumination, motor requirements and telephone-call system of Continental motor mfg. co., Detroit. Mich. H. C. Spillman. il Elec W 61:1081-4 My 24 '13

Electrical rehabilitation of the Rock Island railroad shops in Chicago. il plans Elec W 61:1410-2 Je 28 '13

Improving electrical service for contractors. Eng Rec 67:539 My 17 '13

Lighting and motor service installed in the Filene establishment, Boston. il Elec W 62:579-85 S 20 '13

Output of Banner creamery co., St. Louis, ice-cream plant to be increased with same electrical equipment. Elec W 61:1101 My 24 '13

Provision for electrical equipment on steel motor cars. F. W. Butt. Am Soc M E J 35:828-40 My '13; Same. Ry & Eng R 53:420 My 3 '13

Varied uses of electricity in hotel Ohio, Youngstown. il Elec W 62:1206-8 D 13 '13

Woolworth building; world's highest office building. C. E. Knox. il diag Elec W 62:125-31 J1 19 '13

See also Automobiles—Electric equipment; Electric apparatus; Electric distribution; Electric driving; Electric lighting; Electric plants; Electric power; Electric transmission; Electricity in mining; Electricity on ships; Electricity on the farm

Electric fans. See Fans, Electric

Electric flatirons. See Electric irons

Electric furnaces

Advantages of small high speed electric furnaces. C. Hering. plan Met & Chem Eng 11:183-7 Ap '13

Application of the electric resistance furnace to determination of oxygen in iron and steel. R. H. McMillen. il Iron Age 91:308-9 Ja 29 '13; Same. Met & Chem Eng 11:86-7 F '13

Comparison between electric and fuel furnaces. Met & Chem Eng 11:652 N '13

Crafts electric furnace of the induction type. C. H. Vom Baur. Iron Age 92:612-3 S 18 '13

Developments in electrochemistry. E. F. Roerber. Elec W 61:20-1 Ja 4 '13

Electric brass furnace. C. Hering. Foundry 41:111-2 Mr '13

Electric brass furnace. C. Vickers. Foundry 41:27-8 Ja '13

Electric crucible furnace for refining steel. diags Iron Tr R 52:413-5 F 13 '13

Electric furnace for brass melting. Eng & Min J 96:350 Ag 23 '13

Electric furnace for hardening tools made by General electric co. il plans Iron Tr R 53:129-30 J1 17 '13; Iron Age 92:174-5 J1 24 '13

Electric furnace for making steel castings: first Roebling-Rodenhauser furnace installation in U. S. at Crucible steel casting co., Lansdowne, Pa. C. H. Vom Baur. il Foundry 41:55-8 F '13

Electric furnace heat-treatment of steel. E. F. Lake. il Mach 20:111-4 O '13

Electric furnace in a steel casting foundry: Metallurgic engineering co., Milwaukee. il Foundry 41:353-4 S '13

Electric furnace in production of iron from ore: discussion of present status and comparison of Scandinavian and Californian practices. D. A. Lyon. Met & Chem Eng 11:15-9 Ja '13; Same. Sci Am S 75:381-3 Je 14 '13

Electric furnace in the steel foundry. E. P. Humbert. Iron Age 92:1414-5 D 18 '13

Electric furnace methods of steel production. J. B. C. Kershaw. il Iron Tr R 52:197-203, 361-3 Ja 16, F 6 '13

Electric furnace of Crucible steel casting co., Milwaukee. il Iron Tr R 52:1399-1400 Je 19 '13

Electric furnaces in iron and brass foundries. E. K. Scott. Foundry 41:379-81 S '13

Electric furnaces; their design, characteristics and commercial application. W. M. Johnson and G. N. Sieger. Met & Chem Eng 11:504-7, 563-7, 613-8, 683-6 S-D '13

Electric production of steel: from the early experiments of Siemens to the thirty-ton furnace of to-day. il Sci Am 109:88-9 Ag 2 '13

Electric refining furnace for cast steel. Foundry 41:94-5 Mr '13

Electric smelting of iron ore in California. il Iron Age 92:124-6 J1 17 '13

Electric steel furnace in foundry practice. Mach 19:611 Ap '13

Electric steel industry's present status: number and character of electric steel furnaces in the United States compared with those in other countries. Iron Age 92:81 J1 10 '13

Electric zinc furnace. Met & Chem Eng 11:583-5 O '13

Electro-Bessemer furnace. plan Iron Tr R 52:747 Mr 27 '13

Electrode holder construction for electric furnaces. il diags Met & Chem Eng 11:321-6 Je '13

Electrodes for electric furnaces: proper design and manufacture. G. B. Barham. Sci Am S 76:55 J1 26 '13

Epochal achievement in the electrical arts. Sci Am 109:82 Ag 2 '13

Experiments with furnace electrodes. il Met & Chem Eng 11:279-81 My '13

First combination induction furnace in operation in the United States. C. H. Vom Baur. il Met & Chem Eng 11:113-4 F '13

Foundry pig iron smelted in electric furnaces. il diags Iron Tr R 53:493-7 S 18 '13

Frick electric furnace. Iron Age 92:670-1 S 25 '13

Frick electric steel induction furnace. diags Iron Age 92:744-7 O 2 '13; Same. Sci Am S 76:357-9 D 6 '13

Frick furnace for electric retining of steel. O. Frick. Iron Age 92:1113-1 N 13 '13

Frick induction furnace. O. Frick. plan Eng M 46:439-42 D '13

Helfenstein large electric furnaces. il Iron Age 91:1482-4 Je 19 '13

Induction furnace developments. J. Härdén. il Eng M 45:97-100 Ap '13

Induction-furnace notes. J. Härdén. Met & Chem Eng 11:559-62 O '13

Manufacture of carbon disulphide. E. R. Taylor. il Sci Am S 75:410 Je 28 '13

Methods of heat-treating steel with electricity. E. F. Lake. il diags Mach 20:278-82 D '13

New electric steel casting plant: a Stassano furnace installation in California. E. M. Schmelz. il diag Met & Chem Eng 11:709-10 D '13

Electric furnaces—Continued.

- New steel foundries using electric furnaces. O. J. Abell. *Il Iron Age* 91:1288-9 My 29 '13
- New type of electrical furnace for the reduction of ores. F. Louvriev. *Il Met & Chem Eng* 11:710-3 D '13
- Pinch effect and the pinch-effect electric furnace. J. Hürden. *Met & Chem Eng* 11:429-30 Ag '13
- Possible applications of the electric furnace to western metallurgy. *Met & Chem Eng* 11:577-81 O '13
- Present status of the induction furnace. plans *Met & Chem Eng* 11:99-102 F '13
- Production of the diamond in electric furnaces. F. P. Mann. *diags Met & Chem Eng* 11:361-3 Je '13
- Progress of electric smelting at Heroult, Cal. J. Crawford. *Il Met & Chem Eng* 11:383-8 Jl '13
- Progress of electric steel industry. *Eng & Min J* 96:453 S 6 '13
- Recent improvements in the use of the electric furnace. *Il Sci Am* 109:34-5 Ag 2 '13
- Regulating electric furnaces. *diags Met & Chem Eng* 11:347 Je '13
- Roebling-Rodenhauser electric furnace for making steel for castings. C. H. Vom Baur. *Il Iron Tr R* 52:153-6 Ja 9 '13
- Smelting iron electrically with coke as fuel. *Il plan H. J. Hanson. Iron Tr R* 53:1003-7 D 4 '13
- Smelting of copper ores in the electric furnace. D. A. Lyon and E. M. Keeney. *diags Am Inst Min E Bul* 80:2117-49 Ag '13; Same cond. *Met & Chem Eng* 11:522-7 S '13
- Smelting zinc in an electric furnace. F. L. Clerc. *Met & Chem Eng* 11:428-9 Ag '13
- Status of the electric steel furnace. W. Sykes. *Iron Age* 92:856-7 O 16 '13
- Steel castings from the electric furnace. E. F. Cone. *Il Iron Age* 91:1279-83 My 29 '13
- See also* Electric heating; Electrometallurgy

Electric fuses

- Change in the National electrical code. *Elec W* 61:630-1 Mr 22 '13
- Electric-fuse construction. L. B. Buchanan. *Elec W* 61:577-8 Mr 15 '13
- Electric fuse testing. L. W. Downes. *Elec W* 61:413 F 22 '13
- Electric fuse testing. A. A. Somerville. *Elec W* 61:144 Ja 18 '13
- Fuse economy. H. S. Pardee. *Elec W* 61:1044-5 My 17 '13
- Fuse economy. H. R. Sargent. *Elec W* 61:837 Ap 19 '13
- Important change in National electric code suggested. *Elec W* 61:553-4 Mr 15 '13
- Patented electric fuse for preventing total or partial misfires when firing shots in series. *Eng M* 45:258-9 My '13

Electric generators. See Dynamos**Electric haulage**

- Contact system of electric haulage. *Sci Am* 109:190 S 6 '13
- Electric haulage accidents. *Eng & Min J* 95:661 Mr 29 '13
- See also* Electric locomotives; Electric railroads; Electric tractors; Electric trucks; Telferage

Electric heating

- Costs of one year's electric cooking and heating. *Elec W* 62:643-4 S 27 '13
- Electric heating and lighting in England. L. Bell. *Elec W* 62:413-4 Ag 30 '13
- Electric heating devices. W. S. Hadaway, jr. *Elec W* 61:15-6 Ja 4 '13
- Electric-heating plans at Marblehead, Mass. *Elec W* 61:1095 My 24 '13
- Improved air conditions in a Boston residence. F. I. Cooper. *plan Heat & Ven* 10:20-3 F '13
- Low rates for electric heating service. *Elec W* 62:475-6 S 6 '13
- See also* Electric furnaces; Electric water heaters

Electric hoists. See Hoisting machinery; Mine hoisting**Electric ignition. See Automobile engines—Ignition; Gas and oil engines—Ignition****Electric industries**

- Control of central stations. *Elec W* 62: 458 S 6 '13
- Co-operation for electrical development. *Elec W* 62:514-8 S 13 '13
- Co-operation to promote a greater electrical industry. *Elec Ry J* 42:412-3 S 13 '13
- Co-operation with the sales department: Edison illuminating co. of Detroit. S. M. Sheridan. *Elec W* 62:539-41 S 13 '13
- Credits and collections discussed by electrical business men. *Elec W* 62:1046 N 22 '13
- Developing the latent electrical market. *Elec W* 62:1251-4 D 20 '13
- Eastern New York section, National electric light assn.'s annual meeting at Lake George, N. Y., Sept., 1913. *Elec W* 62:574-6 S 20 '13
- Electric service in Chicago. *Il map Elec W* 61:1137-45 My 31 '13
- Electrical affairs in Great Britain in 1912. A. H. Bridge. *Elec R & W Elec'n* 62:15-6 Ja 4 '13
- Electrical industrial growth in 1912. T. C. Martin. *Elec W* 61:3 Ja 4 '13
- Electrical propaganda on wheels. *Il Elec W* 62:188 Jl 26 '13
- Financial needs of the electrical industry. F. A. Vanderlip. *Elec W* 62:534-7 S 13 '13
- Furthering electrical invention. E. P. Thompson. *Elec W* 62:194 Jl 26 '13
- Inaugural sessions of the Society for electrical development. March 4 & 5, 1913. *Elec W* 61:493-508 Mr 8 '13
- Industrial electrical applications. E. W. Lloyd. *Elec W* 61:14-5 Ja 4 '13
- J. Robert Crouse on the Society for electrical development. *Elec W* 62:169-70 Jl 26 '13
- Merit system for central-station salesmen and solicitors. *Elec W* 62:337 Ag 16 '13
- Observations on European electrical topics. L. Bell. *Elec W* 62:1054 N 22 '13
- Production and distribution of energy. S. Insull. *J Fr Inst* 175:561-600 Je '13
- Progress of the Jovian order—the electrical fraternity. E. C. Bennett. *Elec W* 62:143-4 Jl 19 '13
- Retail dealer and electric appliance sales. *Elec W* 61:349 F 15 '13
- Review of the year in the electrical industry. *Elec R & W Elec'n* 62:7-15 Ja 4 '13
- Sale of electrical supplies by central stations. W. E. Robertson. *Elec W* 62:748-9 O 11 '13
- School to teach the selling of electricity: the Chicago central station institute. *Elec W* 61:334 F 15 '13
- Society for electrical development. *Sci Am* 108:304 Ap 5 '13
- Southern California Edison company's method of disposing of electric appliances. S. M. Kennedy. *Il Elec W* 62:1062-3 N 22 '13
- Statistics of electrical installations in Chicago. *Elec W* 62:174 Jl 26 '13
- Supply jobbers' convention considers accounting. *Elec W* 62:1937-8 N 22 '13
- Syndicate interests in central stations. *Elec W* 62:482-3 S 6 '13
- 13th annual convention of the National electrical contractors' assn., Chattanooga, July, 1913. *Elec W* 62:171-3 Jl 26 '13
- Unified public utilities in central Illinois. *Il map Elec W* 61:1146-56 My 31 '13
- Year's progress in continental Europe, 1912. C. L. Durand. *Elec R & W Elec'n* 62:34-5 Ja 4 '13
- See also* Electric apparatus; Electric engineering; Electric plants; Electric plants—Central stations; Electric power; Electric service companies; Electric shops; Electricity in arts and crafts; Electricity in mining; Electrochemistry; Electrometallurgy

Electric instruments

- Ground detectors. R. L. Mossman. plans *Power* 37:14-5 Ja 7 '13
- Portable electrical instruments. *Il Elec Ry J* 41:728-9 Ap 19 '13
- Precision direct-current indicating-instruments. *Il Am Mach* 38:877 My 22 '13
- Switchboard losses. H. D. Jackson. *Power* 37:375 Mr 18 '13

See also Electric apparatus and appliances, and references under that subject

Electric insulation. See *Insulation*

Electric irons

- Electric-iron sales in Kokomo, Ind. O. M. Booher. *il Elec W* 61:1313-1 *Je* 14 '13
- Southern California Edison company's method of disposing of electric appliances. S. M. Kennedy. *il Elec W* 62:1062-3 *N* 22 '13

Electric laboratories

- Electromechanics research laboratory at Columbia university. J. H. Morecroft. *il Elec W* 61:727-8 *Ap* 5 '13
- Growth of a commercial research laboratory of the General electric co. *Eng N* 69:705 *Ap* 10 '13
- Research laboratory of applied electricity. C. Dantsizen. *il Sci Am S* 75:261-2 *Ap* 26 '13

See also *Physical laboratories*

Electric lamps

- Development of neon tubes. G. Claude. *Eng M* 46:271-4 *N* '13
- Dussaud's cold light. *Sci Am* 108:138 *F* 8 '13
- Dussaud's cold light. J. Boyer. *il Sci Am* 108: 489 *My* 31 '13
- Lamps and illumination. *Elec W* 61:1222-4 *Je* 7 '13
- Relative merits of the various types of electric arc and incandescent lamps for lighting urban and suburban streets. H. H. C. Lasker. Stevens Ind 30:37-56 *Ja* '13
- 7th annual convention of the Illuminating engineering society, Pittsburgh, Pa., Sept., 1913. *Elec W* 62:619-21 *S* 27 '13
- Wide use of tungsten and flame-arc lamps for street lighting in Europe. L. Bell. *Elec W* 62:637-8 *S* 27 '13

See also *Electric light fixtures; Electric lighting; Headlights; Safety lamps; Electric*

Electric lamps, Arc

- Carbon and impregnated electrodes for arc lamps. A. T. Baldwin. *Elec W* 62:793-7 *O* 18 '13
- Electric arc headlight for locomotives; its advantages and disadvantages. J. G. D. Mack. *Sci Am S* 75:78-9 *F* 1 '13
- Focusing-type flame-arc lamp. *il Elec W* 62: 500 *S* 6 '13
- Improved differentially wound long-burning flaming-arc lamp. *il Elec W* 62:554 *S* 13 '13
- Lighting of automobile and parts factories. Automobile 29:297 *Ag* 14 '13
- Long-burning inclosed flaming-arc lamp. *il Elec W* 62:1344 *D* 27 '13
- Luminous-arc installations in Boston, Cambridge, and Lynn, Mass. *il Elec W* 62:469-72 *S* 6 '13
- Water in inclosed flame-arc lamps. W. R. Mott. *Elec W* 62:1220-1 *D* 13 '13

See also *Electric lamps, Mercury vapor*

Electric lamps, Incandescent

- Cathode rays from incandescent lamps. *il Sci Am* 109:124 *Ag* 16 '13
- Considerations in the design of head-lamp light sources. A. R. Dennington. *diags Elec W* 62:742-4 *O* 11 '13
- Data concerning incandescent-lamp reflectors. G. H. Stickney and A. L. Powell. *Elec W* 62:477-81 *S* 6 '13
- Electric lamps for miners. *Sci Am S* 75:283 *My* 3 '13
- Method for spot-testing incandescent filaments. C. F. Lorenz. *il Elec W* 61:932-3 *My* 3 '13
- Performance of incandescent head-lamps. L. C. Porter. *Elec W* 62:744-5 *O* 11 '13
- Progress in public lighting. *Munic Eng* 45: 467-70 *N* '13
- Tariff hearings on incandescent lamps. *Elec W* 61:285-6 *F* 8 '13
- Veteran incandescent lamp. *il Elec W* 62: 964 *N* 8 '13

See also *Electric lamps, Tungsten*

Electric lamps, Mercury vapor

- Cooper Hewitt quartz-tube mercury-vapor lamp. J. C. Pole. *il Elec W* 61:63-4 *Ja* 4 '13
- Development of a new quartz-tube mercury arc lamp. E. Weintraub. *il Elec W* 61:984-6 *My* 10 '13

New ultra-violet ray lamps. *Eng N* 69:559 *Mr* 20 '13

- Quartz tube lamp; design and principal uses of the Cooper Hewitt vacuum arc. J. C. Pole. *il Eng M* 45:895-7 *S* '13
- Theory of mercury-vapor apparatus; the action of the Cooper Hewitt lamp construed on the basis of the electron theory. P. H. Thomas. *Sci Am S* 75:338-9 *My* 31 '13

Electric lamps, Tungsten

- Blackening of tungsten lamps. I. Langmuir. *Ind Eng* 13: 530-1 *D* '13
- Half-watt tungsten-filament electric lamp. *Eng N* 70:724 *O* 9 '13
- Half-watt tungsten lamp. I. Langmuir and J. A. Orange. *Power* 38:567-8 *O* 21 '13
- Increase in tungsten lamp sales at Fort Wayne. *il Elec W* 62:959-60 *N* 8 '13
- Making drawn-tungsten filaments. *Elec W* 61: 1018-9 *My* 17 '13
- Nitrogen-filled high-efficiency tungsten lamp. *il Elec W* 62:798-800 *O* 18 '13
- Nitrogen-filled incandescent lamp. *il Elec W* 62:1130 *N* 29 '13
- Nitrogen-filled lamp. *Sci Am* 109:311 *O* 18 '13
- 0.5 watt per candle tungsten lamps. *Met & Chem Eng* 11:613-5 *N* '13
- Some aspects of the half-watt per cp. tungsten lamp. *Met & Chem Eng* 11:599-600 *N* '13
- Street lighting with tungsten lamps. *il Munic Eng* 45:523-7 *D* '13
- Tungsten lamps of high efficiency; the loss of efficiency by blackening of the bulb, and its prevention. I. Langmuir. *Am Inst E E Pro* 32:1894-1914 *O* '13; Same. *Sci Am S* 76:262-3 *O* 25 '13
- Tungsten lamps of high efficiency; nitrogen-filled lamps. I. Langmuir and J. A. Orange. *diags Am Inst E E Pro* 32:1915-26 *O* '13; Same. *Sci Am S* 76:274-5 *N* 1 '13; Same cond. *Eng M* 46:431-4 *D* '13

Electric law. See *Electric engineering—Law; Electric lines—Law; Electric railroads—Law*

Electric light association, National. See *National electric light association*

Electric light carbons

- Tariff hearings on schedules B and C. *Elec W* 61:338-9 *F* 15 '13

Electric light companies

- Accounting system for small lighting companies. *Elec W* 62:380-1 *Ag* 23 '13

Electric light fixtures

- Burke's adjustable electric light holder. *il Elec R & W Elec'n* 62:114-5 *Ja* 11 '13
- New lighting. H. Pickhardt. *il Arch Rec* 33: 152-5 *F* '13
- Symbolic lighting fixtures in Chicago telephone building. *il Elec W* 61:303 *F* 8 '13

Electric light plants, Municipal. See *Electric plants, Municipal*

Electric lighting

- Assn. of Edison illuminating companies' 34th convention, Cooperstown, N. Y., Sept., 1913: reports. *Elec W* 62:513-4 *S* 13 '13
- Automatic electric light plant. F. C. Coleman. *il Sci Am* 109:55 *JI* 19 '13
- Comparison of arc and incandescent lighting in a shop building. *Elec W* 61:411 *F* 22 '13
- Developments in electric lighting. P. S. Millar. *Elec W* 61:18-9 *Ja* 4 '13
- Electric heating and lighting in England. L. Bell. *Elec W* 62:413-4 *Ag* 30 '13
- Electric lighting and illuminating engineering in 1912. *Elec R & W Elec'n* 62:9-10 *Ja* 4 '13
- Electric-lighting system for automobiles. *il Elec W* 61:159-60 *Ja* 18 '13
- Electric service in Stern Brothers' department store. *il Elec W* 62:962-3 *N* 8 '13
- Electrical display at New Orleans Mardi Gras. *il Elec W* 61:282-3 *F* 8 '13
- Electrically illuminated tennis court. *il Elec W* 62:383 *Ag* 23 '13
- Heald machine co. (Worcester) efficient machine-shop lighting. *il plan Elec W* 61: 628-9 *Mr* 22 '13
- Illuminating engineering society's 7th annual convention, Pittsburgh, Pa., Sept., 1913. *Elec W* 62:619-21 *S* 27 '13

Electric lighting—Continued.

Indirect illumination for general offices. Elec W 61:355-6 F 15 '13
 Indirect lighting. Elec W 61:150 Ja 18 '13
 Indirect-lighting units with detachable bowls. il Elec W 62:443 Ag 30 '13
 Industrial lighting by incandescent lamps: requirements of shop and factory illumination, methods and cost. W. Harrison. il Elec W 62:1001-5 N 15 '13
 Installation and maintenance of electric head-light equipment. V. T. Kropidowski. diag. Ry Age (Mech. ed) 87:367-8, 429-30, 546-9, 603-5 JI-Ag. O-N '13
 Library illumination. F. A. Vaughn. il Elec W 61:1316-8 Je 14 '13
 Lighting installed in the Filene establishment, Boston. il Elec W 62:580-2 S 20 '13
 Lighting of an electrical salesroom. il Elec W 61:784 Ap 12 '13
 Lighting of automobile salesroom of the White co., Boston. il Elec W 62:1330-1 D 27 '13
 Lighting of Bamberger store, Newark, N. J. il Elec W 61:1096 My 24 '13
 Lighting of the Cleveland art loan exposition. Elec W 62:1332 D 27 '13
 Lighting of the Panama-Pacific exposition, 1915. Elec W 61:1043-4 My 17 '13
 Lighting the modern circus. il Elec W 62:250 Ag 2 '13
 Lighting the Panama-Pacific exposition, 1915. Power 37:797-8 Je 3 '13
 Locating faults on series lighting circuits. V. James. il Elec W 61:529-30 Mr 8 '13
 Michigan section, National electric light assn. 2nd annual convention, Ottawa Beach, Aug., 1913. Elec W 62:415-6 Ag 30 '13
 Modern methods of lighting in cotton mills. A. L. Pearson. Am Soc M E J 35:1033-6 Je '13; Same. Ind Eng 13:306-7 JI '13
 Municipal electric light for Cleveland, Ohio. Munic Eng 45:262-4 S '13
 Municipal lighting plant of Troy, Ohio. L. A. Pool. il Munic Eng 44:197-201 Mr '13
 N. E. L. A. 36th annual convention, Chicago, June, 1913. Eng N 69:1243-6 Je 12 '13
 N. E. L. A. 36th annual convention, Chicago, June, 1913. Power 37:917-20 Je 24 '13
 New lighting. H. Pickhardt. il Arch Rec 33:152-5 F '13
 New terminal post office in New York. L. B. Marks and J. E. Woodwell. il Elec W 61:137-43 Ja 18 '13
 Ohio electric light assn. 19th annual meeting. Cedar Point, Ohio, July, 1913. Elec W 62:117-9, 232-4 JI 19, Ag 2 '13
 Ornamental lighting in residential districts: series tungsten system covering all streets of Champaign, Ill. J. R. Cravath. il Elec W 62:1261-6 D 20 '13
 Papers at annual convention of National electric light assn., Chicago, June, 1913. Elec Ry J 41:1012-5 Je 7 '13
 Pennsylvania electric assn.'s 6th annual convention, Delaware Water Gap, Pa., Sept., 1913. Elec W 62:623-5 S 27 '13
 Pittsburgh J. E. S. convention, Sept., 1913. Elec W 62:676-8 O 4 '13
 Re-equipment of McCreery & co.'s department store, Pittsburgh. plan Elec W 61:394-5 F 8 '13
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 Southeastern section, National electric light assn. 1st annual convention, Macon, Ga., Aug., 1913. Elec W 62:368-9, 427-9 Ag 23-30 '13
 Theater installation. Burns theater, Colorado Springs, Colo. il Elec W 61:526-7 Mr 8 '13
 Train lighting. H. A. Currie and B. F. Wood. bibliog Am Soc M E J 35:75-93 Ja '13
 Value of the lighting engineer to the central station. F. H. M. Riley. il Elec W 61:407-8 F 22 '13
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See also Automobiles—Lighting; Car lighting; Electric lamps; Electric light carbons; Electric light fixtures; Electric meters; Electric plants; Electric wire and wiring; Factories—Lighting; Headlights; Locomotive headlights; Photometry; School-

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 Cost of municipal electric lighting at Chicago. R. Palmer. Eng N 70:668 O 2 '13
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How weather conditions affect electric-light bills. Elec W 61:302 F 8 '13
 Pasadena municipal lighting plant. il Munic Eng 41:505-11 Je '13
 Pittsburgh's solution of the small customer problem. Elec W 62:1215 D 13 '13
 Public service commission acts in landlord and tenant case. Power 38:416-7 S 16 '13
 Rates for Berkeley, Cal., electric light. Munic Eng 45:538-9 D '13
 Rates for electricity. H. D. Jackson. Eng M 44:326-34 D '12
 Record of Pasadena's municipal plant. Power 38:626-7 O 28 '13
 System in charging. W. H. Booth. Power 37:474-5 Ap 1 '13

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Electric lighting, Decorative

Decorative lighting in a theater. il Elec W 62:962 N 8 '13
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American electric railway association: report of the committee on joint use of poles. il Elec Ry J 42:855-7 O 17 '13
 California report on inductive interference. Elec Ry J 42:690 O 11 '13
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 Construction costs of transmission line lowered by use of portable concrete mixer. il Elec W 62:489 S 6 '13
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 Design of high-tension electric transmission lines. J. Greenbald. Eng M 44:49-55 O '12
 Details of permit for Great Falls transmission line. Eng Rec 67:162 F 8 '13
 Distribution line records. H. A. Holmes. maps Elec W 62:291-3, 338-40 Ag 9-16 '13
 Effect of sleet storm on distributing lines at Rochester, N. Y. il Elec W 61:412 F 22 '13
 Effects of ice loading on transmission lines. V. H. Greisser. diag Am Inst E E Pro 32:1746-62 S '13
 Effects of recent sleet storm near Chicago. il Elec W 61:605-6 Mr 22 '13
 Ice coating on overhead conductors; theory based on a destructive ice storm in Portland, Ore. W. R. King. il Eng Rec 67:271-2 Mr 8 '13
 Inductive interference with telegraph and telephone lines. Elec Ry J 42:1141 N 29 '13
 Joint California committee on inductive interference. Elec Ry J 41:512 Mr 15 '13
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 Reinforced-concrete trolley poles in Cleveland. L. P. Crecelius. il Eng N 69:510-1 Mr 13 '13
 Removal of poles from city streets. Elec W 61:993 My 10 '13
 Side-bracket 44,000-volt transmission-line construction at Panama. il Elec W 62:241 Ag 2 '13
 60,000-volt steel-tower line construction in southern California. H. W. Dennis. il diag Elec W 62:281-7 Ag 9 '13
 Strength of transmission towers. R. D. Coombs. Elec W 62:544 S 13 '13
 Support of long transmission span by messenger cable. il Elec W 62:1219 D 13 '13
 Swiss and Italian transmission-line construction. L. Bell. Elec W 62:956 N 8 '13

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Testing trolley insulators in place. G. H. McKelway. Elec Ry J 42:1342 D 27 '13
Transmission line poles and towers. Eng & Min J 95:851-2 Ap 26 '13
Transmission tower design for the Central Colorado power company. W. E. Belcher. plan Elec W 61:621-4 Mr 22 '13

See also Electric cables; Electric conduits; Electric protective apparatus; Electric railroads; Electric service companies; Electric transmission; Electric wires and wiring; Hydroelectric plants; Poles; Poles, Concrete; Telegraph; Telephone; Towers, Transmission

Law and regulations

Chicago electrolysis ordinance may be modified. Elec W 62:888 N 1 '13
Construction of an overhead line upon a railroad's right of way. Maguire and Mooney. Elec R & W Elec'n 62:397-8 Ja 11 '13
Property owners of Chesterfield county, Va. failed to prevent the use of right-of-way of the Seaboard air line railway. Elec W 62:774 O 18 '13
Proposed modification of drastic Chicago electrolysis ordinance. Elec Ry J 42:966-7 N 1 '13
Rules on clearances in California. Elec Ry J 41:103 Ja 18 '13
Ruling on service requirements of New York electrical code. il Elec W 62:1065 N 22 '13

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Alexander's single-phase locomotives. il diag Elec W 62:731-2 O 11 '13
American electrifications of high-tension a. c. and d. c. roads, and comparative data to prove the superiority of high-voltage d. c. systems to a. c. systems of split-phase or other types. A. H. Armstrong. Elec Ry J 42:1284-90 D 20 '13; Discussion. W. S. Murray and others. 42:1290-2, 1327-9 D 20-27 '13
Articulated electric locomotives for the New York Central. il Ry Age 54:841-2, 868-9 Ap 11, N 7 '13; Elec Ry J 42:1024 N 8 '13; Ry & Eng R 53:1039 N 8 '13
Combination single-phase and polyphase locomotives for the Norfolk & Western. Elec W 62:367 Ag 23 '13
Direct-current, 2400-volt, electric locomotive, Butte, Anaconda & Pacific Ry. il diag Ry & Eng R 53:560-1 Je 14 '13; Same cond. Elec Ry J 41:1010-1 Je 7 '13; Same cond. Elec W 61:1273-4 Je 7 '13
Driving systems of electric locomotives. F. Lydall. diags Elec Ry J 42:1339-41 D 27 '13
Electric locomotive ratings. Elec Ry J 41: 789 My 3 '13
Electric locomotives for Swiss railway: single-phase 15,000-volt, 15-cycle, 2500-hp units for use on the Loetschberg line. il Elec W 62:1009-11 N 15 '13
Electric locomotives replace expensive trucking service. il Elec Ry J 42:1109 N 22 '13
Electric mine haulage. E. A. Lof. il Colliery 34:301-6 D '13 (to be cont)
Experimental electric locomotives in France. Am Eng 87:129-30 Mr '13
Field test of the electric locomotive. L. V. Newton. Colliery 34:157-8 O '13
Fifty-ton electric freight locomotives, British Columbia electric Ry. il diags Ry & Eng R 53:798-9 Ag 23 '13; Same cond. Elec Ry J 42:272-3 Ag 16 '13
French single-phase locomotive. plans Elec Ry J 41:288-90 F 15 '13
Inferiority of electric locomotives to motor cars in city and suburban service. Elec Ry J 42:379 S 6 '13
Locomotives for the Norfolk & Western electrification. diag map Elec Ry J 42:650-1 O 4 '13
Maintenance of the Pennsylvania railroad electric locomotives. il Elec Ry J 41:452-61 Mr 15 '13
Most powerful electric locomotive in the world for New York Central lines. il Elec W 61:797 Ap 12 '13

New design of electric locomotive for the New York terminal zone of the New York Central railroad. il plans Eng N 69:900-2 My 1 '13

New type electric locomotive for heavy passenger service, New York Central electric zone. plan Ry & Eng R 53:384-6 Ap 26 '13; Same cond. Elec Ry J 41:684-5 Ap 12 '13

New type of electric locomotive. il Eng Rec 67:sup 39 Ap 12 '13

New York Central electric locomotives. il Eng M 45:735-7 Ag '13

Single-phase motor and phase converter for locomotive service. il diags Elec Ry J 42: 677-81 O 11 '13

Single-phase-polyphase motors for the Norfolk & Western. Elec Ry J 42:298-9 Ag 23 '13

Steam road electrifications. A. H. Armstrong. Elec Ry J 41:17-20 Ja 4 '13

Steam versus electric locomotives. R. V. Macauley. Eng M 44:131-6 D '12

Storage battery electric locomotive. il Mines & Min 33:343 Ja '13

Storage-battery gathering mine locomotives. il Colliery 33:592 My '13

Storage battery locomotive in coal mines. A. R. Anderson. Colliery 34:146-50 O '13

2500-hp Loetschberg locomotives. il Elec Ry J 42:1048-52 N 15 '13

2400-volt direct-current locomotive; Butte, Anaconda & Pacific railway. il Eng N 69: 1305-6 Je 26 '13

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Electric machinery

Alternating-current machinery troubles. E. A. Lof. Mach 20:204-7, 283-6 N-D '13

British standardization rules for electric machines. Elec W 61:1322 Je 14 '13

Developments in electrical machinery. B. A. Behrend. Elec W 61:9-10 Ja 4 '13

Drying out electrical machinery. F. H. Davies. Power 37:221-2 F 18 '13; Same cond. Eng & Min J 95:949-50 My 10 '13

Drying out submerged machines. Elec W 61:153 Ja 18 '13

Electric dumb-waiters. Elec W 62:604-5 S 20 '13

Electric power in building the world's greatest aqueduct. J. M. Matthews. il Eng M 44:161-84 N '12

Electric propelling machinery for Collier Jupiter. W. L. R. Emmet. il plans Int Marine Eng 18:323-7 Ag '13

Electric propulsion for ships. E. Berg. plan Eng M 44:269-72 N '12

Electric riveting. il Ry Age (Mech ed) 87: 394-5 Jl '13

Electric tie boring and spiking machine. il Eng N 70:506-7 S 11 '13

Electric washing machine with novel reversing device and safety attachment. il Elec W 62:395-6 Ag 23 '13

Electrical machinery in 1912. Elec R & W Elec'n 62:12-3 Ja 4 '13

Electrical requirements of certain machines in the rubber industry. C. A. Kelsey. il Am Inst E E Pro 32:1598-1604 Jl '13

Insulating and grounding motors and generators. T. Croft. diags Elec W 62:908-9, 965-7 N 1-8 '13

Noiseless operation of electric machines. G. Pontecorvo. Elec W 61:1263 Je 7 '13

Self-synchronizing machines. E. Rosenberg. plan Elec W 61:945 My 3 '13

Sole-plates and shoes for electrical machine foundations. F. B. Duggan. il Elec W 61: 579-80 Mr 15 '13

Steel-plant electrical installations. R. L. Streeter. il Eng M 44:362-84 D '12

Utilizing electrical energy in the construction of subway at Boston. il Elec W 61: 44-7 Ja 4 '13

Weight of electrical apparatus and prime movers. L. A. Doggett. Elec W 61:932 My 3 '13

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See also Commutators; Dynamos; Electric apparatus and appliances; Electric controllers; Electric current converters; Electric driving; Electric engineering; Electric equipment; Electric locomotives; Electric motors; Electric plants; Electric shovels; Electric tractors; Electric transformers; Electricity in mining; Electricity on ships; Electricity on the farm; Elevators, Electric; Hydroelectric plants; Rotary converters; Synchronizing

Losses

- Brush friction and contact losses. H. F. T. Erben and A. H. Freeman. *Am Inst E E Pro* 32:370-6 F '13
- Commutation and brush loss. C. E. Wilson. *Am Inst E E Pro* 32:640-8 F '13
- Determination of load loss correction factors for rotating electric machines. E. M. Olin and S. L. Henderson. *diags Am Inst E E Pro* 32:522-46 F '13
- Determination of stray losses from input-output tests. L. T. Robinson. *Am Inst E E Pro* 32:680-700 F '13
- Methods of determining brush losses due to contact and friction. H. R. Edgecomb and W. A. Dick. *il Am Inst E E Pro* 32:450-61 F '13
- Stray loss in direct-current commutating machines. H. F. T. Erben and H. S. Page. *Am Inst E E Pro* 32:282-9 F '13
- Stray losses in synchronous machines. F. K. Brainard. *Am Inst E E Pro* 32:548-51 F '13

See also Dynamos—Losses; Electric motors—Losses

Temperature

- Effect of air temperature, barometric pressure and humidity on the temperature rise of electric apparatus. C. E. Skinner, L. W. Chubb and P. Thomas. *Am Inst E E Pro* 32:554-64 F '13
- Laboratory investigation of temperature rise as a function of atmospheric conditions. C. R. Blanchard and C. T. Anderson. *Am Inst E E Pro* 32:464-75 F '13
- Laws of heat transmission in electrical machinery. I. Langmuir. *Am Inst E E Pro* 32:399-413 F '13; Same. *Eng N* 69:1158-62 Je 5 '13
- Measurement of temperature in rotating electric machines. L. W. Chubb, E. I. Chute and O. W. A. Götting. *Am Inst E E Pro* 32:584-97 F '13
- Method of determining temperature of alternating current generators and motors and room temperature. H. G. Reist and T. S. Eden. *Am Inst E E Pro* 32:226-34 F '13
- Short heat tests of electric machines. W. R. Cooper. *Elec W* 62:809 O 18 '13
- Thermocouples and resistance coils for determination of local temperatures in electrical machines. J. A. Capp and L. T. Robinson. *Am Inst E E Pro* 32:702-8 Mr '13

Testing

- Sources of error in efficiency determination of rotating electric machines. E. I. Chute and W. Bradshaw. *Am Inst E E Pro* 32:650-7 F '13

Electric measurement

- Calibration of the sphere gap voltmeter. L. W. Chubb and C. Fortescue. *il Am Inst E E Pro* 32:628-38 F '13
- Condenser-current method for the determination of alternating wave-form. F. Bedell. *diags Elec W* 62:378 Ag 23 '13
- Discussion on group I papers (Heating, heat measurements, rating by heat.) (See Proceedings for February, 1913) *Am Inst E E Pro* 32:1833-83 S '13
- Discussion on group IV papers (Miscellaneous subjects relating to ratings.) (See Proceedings for February, 1913) *Am Inst E E Pro* 32:2074-2121 N '13
- Discussion on permeability measurements with alternating current (Robinson and Ball), and measurements of maximum values in high-voltage testing (Sharp and Farmer). *Am Inst E E Pro* 32:85-8 Ja '13

Errors in the interpretation of tests for electrolysis. C. Hering. *Elec Ry J* 42:1135-6 N 29 '13

Influence of temperature, barometric pressure and humidity of the cooling medium on temperature rise of stationary induction apparatus. J. J. Frank and W. O. Dwyer. *Am Inst E E Pro* 32:338-62 F '13

Laboratory investigation of temperature rise as a function of atmospheric conditions. C. R. Blanchard and C. T. Anderson. *Am Inst E E Pro* 32:464-75 F '13

Measuring currents in underground structures. C. Hering. *Elec Ry J* 42:682-5 O 11 '13

Method of determining temperature of alternating current generators and motors and room temperature. H. G. Reist and T. S. Eden. *Am Inst E E Pro* 32:226-34 F '13

Method of rating electrical apparatus. W. L. Merrill, W. H. Powell and C. Robbins. *Am Inst E E Pro* 32:127-36 F '13; Discussion. 32:1679-1737 Ag '13

Methods of determining temperature of transformers and of cooling medium. S. E. Johannesen and G. W. Wade. *Am Inst E E Pro* 32:251-75 F '13; Discussion. 32:1872-6 S '13

Proposed wave shape standard. C. M. Davis. *Am Inst E E Pro* 32:236-44 F '13

Sphere spark gap. S. W. Farnsworth and C. L. Fortescue. *diags Am Inst E E Pro* 32:300-5 F '13

Temperature and electrical insulation. C. P. Steinmetz and B. G. Laume. *Am Inst E E Pro* 32:113-23 F '13; Discussion. 32:1679-1737 Ag '13

Test of an artificial aerial telephone line at a frequency of 750 cycles per second. A. E. Kennedy and F. W. Lieberknecht. *bibliog Am Inst E E Pro* 32:1280-1304 Je '13; Discussion. 32:2278-90 D '13

Use of the synchronous commutator in alternating current measurements. F. Bedell. *bibliog il J Fr Inst* 176:385-404 O '13

See also Eddy currents; Electric meters; Electric resistance; Electric testing; Electric units; Electric waves; Galvanometers; Thermocouples

Electric meters

- Back-porch meter installations. *il Elec W* 61:938-40 My 3 '13
- Combined kilowatt-hour and demand meter. *diags Elec W* 62:298 Ag 9 '13
- Graphic meters. *Elec W* 62:183-4 Jl 26 '13
- Horschitz slip meter. *il Elec W* 62:444-5 Ag 30 '13
- Portable meters for alternating-current or direct-current circuits. *il Elec W* 62:350 Ag 16 '13; Power 38:394 S 16 '13
- Rehabilitating 4400 flood-immersed meters at Dayton. *il Elec W* 61:1320-1 Je 14 '13
- Remote control of two-rate meters for off-peak service. *plan Elec W* 61:684 Mr 29 '13
- Split-core instrument for measuring large direct current. *plan Elec W* 61:632-3 Mr 22 '13

See also Ammeters; Voltmeters; Voltmeters; Watt-hour meters

Testing

- Cost of periodic testing of electric meters. *Elec W* 62:434 Ag 30 '13
- Meter test boards. G. C. Cassard. *diags Power* 37:778-9 Je 3 '13
- Milli-hour stop-pendulum. *diag Elec W* 62:242 Ag 2 '13
- Watt-hour meter testing for central stations. C. W. Ward and H. N. Stroh. *il diags Elec W* 62:538-9 S 13 '13
- Electric mining. *See* Electricity in mining
- Electric motor car club of Boston. Meeting, May 1, 1913. *Elec W* 61:974 My 10 '13

Electric motors

- A B C of the electric motor. S. Oxberry. *il Automobile* 29:73-41 O 23 '13
- Alternating-current motors for pumps and blowers. *il Elec W* 61:1004-5 My 10 '13
- Alternating-current motors for the economic operation of mine fans. E. B. Crosby. *Am Inst E E Pro* 32:974-88 Ap '13; Discussion. 32:2214-53 D '13

Electric motors. Continued.

- Application and care of induction motors. C. A. Tupper. *Iron Tr R* 53:333-4 Ag 24 '13
- Convenient system of motor maintenance and repair record cards, by Am. ship building co., Lorain, O. *Elec W* 61:1266-7 Je 7 '13
- Designing motor installations for improved power-factor. *Elec W* 62:1334-5 D 27 '13
- Direct current motor from a telephone ring-er. G. Hubbard. *Il Sci Am* 108:271 Mr 22 '13
- Dynamo and motor characteristics. C. P. Poole. *diags Power* 37:115-8 Ja 28 '13
- Dynamo and motor troubles. R. L. Mossman. *plan Power* 37:526-8 Ap 15 '13
- Effect of room temperature on temperature rise of motors and generators. M. W. Day and R. A. Beekman. *Am Inst E E Pro* 32:416-26 F '13
- Electric motor in heating and plumbing. G. E. Benson. *Il Dom Eng* 62:40-1 Ja 11 '13
- Fire pump motors of alternating current type. H. P. Reed. *Il Iron Tr R* 53:879-80 N 13 '13
- Geared drive for electric motors. *Ind Eng* 13:476-7 N '13
- General electric reversing motor drive. *Il Mach* 19:399-400 Ja '13
- Induction motor. F. A. Annett. *Il Power* 38:534-7, 601-3, 679-81, 781-7, 853-6 O 11-28, N 11, D 2, 16 '13
- Induction motor safeguarding. *Iron Age* 91:1542-3 Je 26 '13
- Interesting static electric motor. H. B. Dailey. *Il Sci Am* 108:11 Ja 4 '13
- Modified induction motor. *diag Elec W* 62:1123 N 29 '13
- Motor inspection and maintenance in industrial plants. F. E. Hanchette. *Eng N* 70:746-8 O 16 '13
- Motors and motor applications. A. B. Morrison, jr. *Power* 37:259-61, 296-7, 335-6 F 25-Mr 11 '13
- Performance similarities of the direct-current shunt motor and the polyphase induction motor. W. G. Merowitz. *Elec W* 61:244-5 F 1 '13
- Phase compensation. V. A. Fynn. *Elec W* 62:28-34, 75-81, 132-6 Jl 5-19 '13
- Rating of induction motors. A. Gray. *Elec W* 61:1413-4 Je 28 '13
- Reduction in fire insurance costs with electric-motors. C. J. Williams. *Elec W* 61:935 My 3 '13
- Safeguarding the induction motor. *Il diags Ry & Eng R* 53:821 Ag 30 '13
- Self-starting single phase induction motor. C. F. Fraasa, jr. *Il Sci Am S* 75:226-7, 242-3 Ap 12-19 '13
- Single-phase motor. A. Heyland. *diags Elec W* 62:314 Ag 16 '13
- Single-phase motor and phase converter for locomotive service. *Il diags Elec Ry J* 42:677-81 O 11 '13
- Single-phase motor for cylinder printing presses. *Il Elec W* 61:1186-7 My 31 '13
- Types of motors for steel mill auxiliaries. B. R. Shoyer and E. J. Cheney. *Iron Tr R* 52:251-3 Ja 23 '13
- Use of motors in cement mills. *Eng Rec* 67:207 F 22 '13

See also Commutators; Dynamos; Electric controllers; Electric driving; Electric locomotives; Electric machinery; Electric power; Electric transformers

Losses

- Discussion on group III papers (Methods of determining losses in apparatus). (See Proceedings for February, 1913) *Am Inst E E Pro* 32:2007-16 N '13
- Induction motor load losses. H. G. Reist and A. E. Averett. *Am Inst E E Pro* 32:138-44 F '13
- Induction motor losses. R. W. Davis. *Am Inst E E Pro* 32:364-7 F '13
- Stray losses in induction motors. A. M. Dudley. *Am Inst E E Pro* 32:246-52 F '13
- See also* Electric machinery—Losses; Electric testing

Speed control

- Discussion of Power requirements of rolling mills (Sykes), and the Economical speed control of alternating-current motors driving rolling mills (Meyer and Sykes). *Am Inst E E Pro* 32:70-84, 822-31 Ja, Mr '13

Starting devices

- Automatic reversing starter. J. A. Seager. *Il diag Power* 38:13-4 Jl 1 '13
- Control of fire-pump motors. *Il Iron Age* 92:507 S 4 '13
- Induction motor. F. A. Annett. *Il Power* 38:784-7 D 2 '13
- Self-starting motor. *Il Colliery* 33:592-3 My '13

Testing

- Comparison of methods of making load tests on a-c. generators and on induction motors. E. F. Collins and W. E. Holcombe. *Am Inst E E Pro* 32:190-205 F '13
- Discussion on group III papers (Methods of testing apparatus for performance). (See Proceedings for February, 1913) *Am Inst E E Pro* 32:2054-68 N '13
- Notes on methods of making load tests on large induction motors. A. M. Dudley. *Am Inst E E Pro* 32:618-26 F '13

Electric motors, Railway

- Brooklyn motor, truck and brakeshoe improvements. *Il Elec Ry J* 41:98-103 Ja 18 '13
- Development of the electric railway motor. N. W. Storer. *Elec Ry J* 41:21-5 Ja 4 '13
- Economies in motor maintenance. J. C. Thirlwall. *Elec Ry J* 41:370-2 Mr 1 '13
- Electric welding and motor rejuvenation. *Il Elec Ry J* 41:1102-5 Je 21 '13
- Maintenance costs of old and new railway motors. J. C. Thirlwall. *Elec Ry J* 42:495-7 S 27 '13
- Railway motor connections. *diags Elec Ry J* 41:1114-5 Je 21 '13
- Single-phase-polyphase motors for the Norfolk & Western. *Elec Ry J* 42:298-9 Ag 23 '13
- Single-phase railway motors. L. Bell. *diags Elec Ry J* 41:1003-5 Je 7 '13

Electric motors, Synchronous

- Application of synchronous motors to a water power transmission system. L. E. Andrus. *Am Inst E E Pro* 32:721-55 Mr '13
- Behavior of synchronous motors during starting. F. D. Newbury. *Il Am Inst E E Pro* 32:1260-77 Je '13
- Combination rotary converter and synchronous motors. *Il Elec W* 62:709-10 O 4 '13
- Combined synchronous and induction motor loads. H. L. Wallau. *Elec W* 62:1057-9 N 22 '13
- Constant voltage transmission. H. B. Dwight. *Am Inst E E Pro* 32:1358-72 Je '13; Excerpts. *Power* 38:54-5 Jl 8 '13
- Industrial use of synchronous motors by central stations. J. C. Parker. *Il Am Inst E E Pro* 32:1252-8 Je '13; Same. *Sci Am S* 76:152-3 S 6 '13
- Self-starting synchronous motor. J. A. Seager. *Il Iron Tr R* 52:746-7 Mr 27 '13
- Self-starting synchronous motors. *Il Elec W* 61:794 Ap 12 '13
- Synchronous motors. *diag Elec W* 62:82-3 Jl 12 '13
- Synchronous motors driving air compressors. *Il Power* 37:151-2 F 4 '13
- Synchronous motors for compressors. *Eng & Min J* 96:930 N 15 '13
- Electric plants**
- Automatic electric light plant. F. C. Coleman. *Il Sci Am* 109:55 Jl 19 '13
- Automatic electric lighting plant. *Il Eng M* 45:268-70 My '13
- Can the factory generate its own power cheaper than the central station can supply it? *Ind Eng* 13:478-80 N '13
- Central station vs. isolated plant. J. C. Hawkins. *Power* 37:464-5 Ap 1 '13
- Coal products company's power plant, Joliet, Ill. S. G. Artingstall, jr. *Il plan Power* 38:384-7 S 16 '13
- Developments in power generation. *Elec Ry J* 41:994-5 Je 7 '13

Electric plants —Continued.

- Electric power distribution in steel mills. S. C. Coey. *Iron Tr R* 52:410-2 F 13 '13
- Electrical equipment of a modern building: isolated 500-kw generating plant for Æolian Hall, N. Y. *il plan Elec W* 61:395-401 F 22 '13
- Following up the purchase and installation of machinery. A. W. Welch. *il Eng M* 45: 674-82 Ag '13
- How one mill beats the central station. *Power* 37:447-8 Ap 1 '13
- Isolated plant vs. central station. *Power* 37: 541-2 Ap 15 '13
- Isolated plant vs. central station. W. B. Lewis. *Power* 37:720-1 My 20 '13
- Obtaining power from a testing plant. *Sci Am* 108:108 My 3 '13
- Operating the plant of Mason-Seaman transportation co., N. Y., under difficulties. *plan Power* 37:627-8 My 6 '13
- Operation of a turbo-electric ice factory, Los Angeles. *Elec W* 61:892 Ap 26 '13
- Plant of Packard motor car co., Detroit. A. R. Maujer. *il Power* 37:140-5 F 4 '13
- Power plant conveniences at Providence, R. I. *il Elec Ry J* 42:343 Ag 30 '13
- Power plant of small proportions. *il Iron Age* 92:1282-3 D 4 '13
- Practical co-operation between central station and isolated plant. P. R. Moses. *Eng M* 41:578-87 Ja '13
- Prudential insurance co. plant, Newark, N. J. C. H. Bromley. *il plan Power* 37:2-8 Ja 7 '13
- Purchasing or making power. H. D. Jackson. *Power* 38:327 S 2 '13
- Renton heel co., Lynn, Mass.: good record for small isolated plant. F. L. Johnson. *il Power* 38:456-8 S 30 '13
- Successful small isolated plant, Detroit, Mich. *il Power* 38:33-4 J1 1 '13
- Turbo-alternator plant for the world's largest office building; Railway exchange bldg., St. Louis. *Elec W* 61:714-5 Ap 5 '13
- Why the Chicago federal building is to have its own plant. *Power* 38:73-1 J1 8 '13
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- Central-station facts and factors in the state of Iowa. *Elec W* 61:1042 My 17 '13
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- Production and distribution of energy. S. Insull. *J Fr Inst* 175:561-609 Je '13
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Central-station service code of the Union electric light and power co., St. Louis, Mo. *Elec W* 62:1329 D 27 '13

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Central station management; devoted to discussion of administrative policies, commercial methods, and current practice among successful utilities. See weekly numbers of *Electrical world*

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Power economies in large generating plants. *Eng Rec* 68:481 N 1 '13

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9th annual convention of Southwestern electrical & gas assn., Galveston, May, 1913. Elec Ry J 41:1919-21 Je 7 '13

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American electric railway accountants' assn.: proceedings at Atlantic City convention, Oct. 17. Elec Ry J 42:900-1 O 18 '13

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- American electric railway engineering association: report of committee on insurance, Elec Ry J 42:863-4 O 16 '13

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- Am. electric railway assn.: report of committee on federal relations, Elec Ry J 42:872-3 O 17 '13
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American electric railway transportation & traffic association session. Oct. 16, 1913. *Elec Ry J 42:842-4 O 17 '13*

Fifth annual report of the District electric railway commission, Washington, D. C., 1912. *Elec Ry J 41:301 F 15 '13*

Merit and demerit systems applied to managements. *Elec Ry J 42:135 JI 26 '13*

Notes along the line. E. W. Goss. *Elec Ry J 41:329 F 22 '13*

Relation of the traffic department with its company. J. F. Starkey. *Elec Ry J 42:1100-1 N 22 '13*

Traffic delays—their causes and remedies. *Elec Ry J 41:763-4 Ap 26 '13*

Traffic improvements of the Connecticut company. *il map Elec Ry J 42:252-60 Ag 16 '13*

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- Effective resistance and reactance. W. V. Lyon. Elec W 62:1006-8 N 15 '13

- Resistors for street railway service. F. W. Harris. Elec Ry J 41:756 Ap 26 '13

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- Transmission-line service to central Kentucky towns. Elec W 62:1208-9 D 13 '13
 Windsor, Vt.—central station practice. il Elec W 62:1153-9 D 6 '13

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- Accounting system for electric companies. L. W. Allison. Power 38:697-700 N 11 '13

- Commercial development under group control: system of Illinois northern utilities co. il Elec W 61:1255-9 Je 7 '13

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- Saturating the dollar with energy. Elec W 62:939-41 N 8 '13

- Strained trade relations at Cincinnati. Elec W 61:1399-1401 Je 28 '13

- 34th convention of Assn. of Edison illuminating companies, Cooperstown, N. Y., Sept., 1913: reports. Elec W 62:566-9 S 20 '13

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- Performance and power consumption of a 2½-cu. yd. electric shovel. C. E. Hogle. Eng N 69:168-9 Ja 23 '13

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- One hundred thousand photographs per second: high-frequency electric sparks used as a source of intermittent light. il Sci Am S 75:69 F 1 '13

- Sparking. E. F. Butler. diag Power 37:818-9 Je 10 '13

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- British standardization rules for electric machines. Elec W 61:1322 Je 14 '13

- Current rating of electric cables. R. W. Atkinson and H. W. Fisher. Am Inst E E Pro 32:566-73 F '13; Discussion. 32: 1859-67 S '13

- Method of rating electrical apparatus. W. L. Merrill, W. H. Powell and C. Robbins. Am Inst E E Pro 32:127-36 F '13; Discussion. 32:1679-1737 Ag '13

- Proceedings of the American institute of electrical engineers, section 2. Am Inst E E Pro 32:113-700 F '13

- Proposed wave shape standard. C. M. Davis. Am Inst E E Pro 32:236-44 F '13

- Rating of oil circuit breakers with reference to rupturing capacity. G. A. Burnham. Am Inst E E Pro 32:278-80 F '13

- Revision of German standardization rules. Elec W 61:967 My 10 '13

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Mechanical design of switches. Sci Am S 76: 48 J1 19 '13

150,000-volt air-break switches for southern Sierras transmission system. *il* Elec W 62: 234-6 Ag 2 '13

Pole-top disconnecting switches. *il* Elec Ry J 41:77-8 Ja 11 '13

Pressure-operated switch for pump motors and low-water alarms. *plan* Eng N 69:623 Mr 27 '13

Service switch and fuse box; Switch for remote control; and Three-circuit cord switch. *il* Elec W 61:64-5 Ja 4 '13

Transformers and switching equipment. E. A. Lof. *il* Eng M 44:696-713 F '13

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Report of the special committee of the I. E. C. on symbols. Am Inst E E Pro 32:2156-69 N '13

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Diversity-factor and load-factor. C. W. Brown. *Elec W* 62:1119 N 29 '13

Load-factor and diversity-factor. *Elec W* 62:1122 N 29 '13

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Electric testing

Comparison of methods of loading large a-c. and d-c. generators and synchronous converters for factory temperature tests. F. D. Newbury. Am Inst E E Pro 32:660-77 F '13

Comparison of methods of making load tests on a-c. generators and on induction motors. E. F. Collins and W. E. Holcombe. Am Inst E E Pro 32:190-205 F '13

Determination of stray losses from input-output tests. L. T. Robinson. Am Inst E E Pro 32:680-700 F '13

Discussion on group III papers—(Methods of testing apparatus for performance). (See Proceedings for February, 1913) Am Inst E E Pro 32:2054-72 N '13

Induction motor load losses. H. G. Reist and A. E. Averett. Am Inst E E Pro 32:138-44 F '13

Load losses of alternating current generators. W. J. Foster and E. Knowlton. Am Inst E E Pro 32:146-61 F '13

Load tests on transformers. J. J. K. Madden. Am Inst E E Pro 32:321-36 F '13

Locating faults on series lighting circuits. V. James. *il* Elec W 61:529-30 Mr 8 '13

Measurement of peak voltage. H. A. Morss. *Elec W* 62:136 J1 19 '13

Midwinter convention. A. I. E. E., New York, Feb., 1913. *Elec W* 61:515-22 Mr 8 '13

Notes on methods of making load tests on large induction motors. A. M. Dudley. Am Inst E E Pro 32:618-26 F '13

Revision of standardization A. I. E. E. rules. *Elec W* 61:230-1 F 1 '13

Sources of error in efficiency determination of rotating electric machines. E. I. Chute and W. Bradshaw. Am Inst E E Pro 32: 650-7 F '13

Sources of error in transformer tests. W. M. McConahey and C. Fortescue. Am Inst E E Pro 32: 576-82 F '13

Suggested specifications for testing high-voltage insulators. F. W. Peck, J. A. Sanford and P. H. Thomas. Am Inst E E Pro 32:1642-65 J1 '13

Test of an Edison primary battery (Edison-Lalande cell). D. Sanford. Met & Chem Eng 11:129-30 Mr '13

See also Dynamometer; Dynamos—Testing; Eddy currents; Electric laboratories; Electric machinery; Electric measurement; Electric meters; Electric motors—Losses; Electric motors—Testing; Electric resistance; Electric standards; Insulation

Electric tractors

Battery-driven tractor for switching freight cars in city streets. *il* Elec W 61:727 Ap 5 '13

Electric auto tractor for hauling freight cars in city streets. *il* Eng Rec 67:sup 42 F 1 '13

Electric tractor for hauling freight cars in city streets. Pennsylvania R. R. *il* Eng N 69:348-9 F 20 '13

Electric tractor for switching service in city streets. *il* Elec Ry J 41:768 Ap 26 '13

Electric tractor for use on city streets, Pennsylvania railroad. *il* Ry & Eng R 53:106 F 1 '13

Handling cost reduced by tractors. *il* Iron Age 92:14-5 J1 3 '13

See also Electric locomotives; Electric vehicles

Electric transformers

Alternating-current machinery troubles. E. A. Lof. Mach 20:283-5 D '13

Application of a theorem of electrostatics to insulation problems. C. Fortescue. *il* Am Inst E E Pro 32:774-93 Mr '13

Construction of a one-kilowatt closed core wireless transformer. *il* Sci Am 109:288 O 11 '13

Correction of transformer temperatures for variation in room temperature, taking into account both copper and iron losses. C. Fortescue. Am Inst E E Pro 32:698-16 F '13

Decreasing frequency of transformers. F. A. Annett. Power 37:631-2 My 6 '13

Discussion on group II papers (Methods of determining losses in apparatus). (See Proceedings for February, 1913) Am Inst E E Pro 32:2016-28 N '13

Discussion on group III papers (Methods of testing apparatus for performance). (See Proceedings for February, 1913) Am Inst E E Pro 32:2068-72 N '13

Electrolytic rectifier for the garage. *il* Sci Am 109:246 S 27 '13

Handling, sampling and testing of transformer oil. G. E. Armstrong. *il* Elec W 62:1322-4 D 27 '13

High-voltage pole-type transformers. *il* Elec R & W Elec N 62:41-2 Ja 4 '13

Hydraulic transmission on ships: the Föttinger transmitter. *il* Eng M 46:108-12 O '13

Induction motor. F. A. Annett. *il* Power 38: 784-7 D 2 '13

Induction motor safeguarding. Iron Age 91: 1542-3 Je 26 '13

Load tests on transformers. J. J. K. Madden. Am Inst E E Pro 32:324-36 F '13

Losses in transformers. W. W. Lewis. Am Inst E E Pro 32:478-504 F '13

Merits and the early history of some phase-transforming systems. W. T. Taylor. *Elec W* 62:647-9 S 27 '13

Methods of determining temperature of transformers and of cooling medium. S. E. Johannesen and G. W. Wade. Am Inst E E Pro 32:254-75 F '13

Methods of determining temperature of transformers. W. M. McConahey and C. Fortescue. Am Inst E E Pro 32:506-19 F '13

Methods of obtaining greater flexibility of operation in standard transformers. G. A. Thornton and G. Goldman. *Elec W* 61: 402-4 F 22 '13

Novel transformer connections. E. R. Filkins. *il* Power 38:197 Ag 5 '13

Electric transformers *Continued.*

- Oil-piping layout for transformers using thin oil. F. Buch. plans Elec W 61:360-2 F 15 '13
- Outdoor transformers. *il* Elec W 61:317-8 F 8 '13
- Platform support for oil switches. *il* Elec W 62:856 O 25 '13
- Relative cost of three-phase and single-phase transformers. V. L. Hollister. Eng M 45: 866-71 S '13
- Some phase-transforming systems. W. T. Taylor. Elec W 62:907 N 1 '13
- Sources of error in transformer tests. W. M. McConahey and C. Fortescue. Am Inst E E Pro 32:576-82 F '13
- Stray losses in transformers. C. Fortescue and W. M. McConahey. Am Inst E E Pro 32:308-21 F '13
- Testing shunt instrument transformers. H. B. Brooks. Elec W 62:898-9 N 1 '13
- Transformer characteristics. E. T. Moore. diags Power 38:429-31, 467-9 S 23-30 '13
- Transformers and switching equipment. E. A. Lof. *il* Eng M 44:690-6 F '13
- Transformers for manholes. *il* diag Elec W 62:349 Ag 15 '13
- Two-phase to three-phase auto-transformers. R. E. Uptegraff. Elec W 62:589-90 S 20 '13

See also Electric current converters; Electric current rectifiers; Electric currents; Electric distribution; Rotary converters

Electric transmission

- Acadia coal company's steam-turbine plant; generating station for the mines at Stellarton, Nova Scotia, burning culm. *il* Elec W 61:445-8 Mr 1 '13
- Alabama traction, light and power co., ltd., of Birmingham—hydroelectric station on the Coosa river and steam station at Gadsden. *il* Elec W 62:527-30 S 13 '13
- Alternating-current conductors. C. R. Parli-man. Power 37:669 My 13 '13
- Application of hyperbolic functions. A. E. Kennelly. plan Elec W 61:459-1 Mr 1 '13
- Application of synchronous motors to a water power transmission system. L. B. Andrus. Am Inst E E Pro 32:721-55 Mr '13
- Artificial telegraph and telephone lines. Elec W 61:79 Ja 11 '13
- Constant-voltage transmission. Elec W 62:81 Ji 12 '13
- Constant-voltage transmission. H. B. Dwight. Am Inst E E Pro 32:1358-72 Je '13; Excerpts. Power 38:54-5 Ji 8 '13
- Construction methods on Keokuk-St. Louis transmission line. *il* Elec W 61:891-2 Ap 26 '13
- Cost of erecting 110,000-volt transmission lines. *il* Elec W 61:1259 Je 7 '13
- Daring Scandinavian transmission project at Trollhättan. Elec W 61:279 F 8 '13
- Design of an 1180-ft. transmission-line span in Hiroshima in southern Japan. K. No-gami. *il* diag Elec W 62:277-80 Ag 9 '13
- Design of high-tension electric transmission lines. J. Greenhalgh. Eng M 44:49-55 O '12
- Distribution of electrical energy. Elec W 62: 514-5 S 13 '13
- Electric transmission equipment, Panama canal. Ry & Eng R 53:842-3 S 6 '13
- Electrical transmission line, Isthmus of Pan-ama. diags Ry & Eng R 53:831-2 Ag 30 '13
- Electrically operated excavators on Calumet-Sag channel of Chicago drainage canal. *il* Elec W 61:409 F 22 '13
- Formulas for capacity of single-phase trans-mission lines and cables. C. A. Pierce and F. J. Adams. Elec W 62:327-33 Ag 16 '13
- Gary and interurban railway co.'s quick-change-over from 12,000 volts to 33,000 volts. *il* Elec W 62:387-8 Ag 23 '13
- Generating current at the mine. Sci Am 108: 157 F 15 '13
- Generation and transmission of hydro-elec-tric power. E. A. Lof. *il* Eng M 44:903-20; 45:50-70, 196-208, 372-83, 508-11 Mr-Jl '13
- Graphical statics applied to transmission-line calculations. A. Still. Elec W 62:230-2 Ag 2 '13
- High-tension d. c. transmission. Elec Ry J 41:1069 Je 14 '13
- High-tension direct-current transmission. diags Elec W 61:1412-3 Je 28 '13
- High-tension transmission system; substations and 66,000-volt steel-tower lines of Cen-tral Georgia transmission co. *il* Elec W 61:189-91 Ja 25 '13
- High-voltage engineering. F. W. Peek, jr. J Fr Inst 176:611-43 D '13
- Hydroelectric energy for Worcester railway system. *il* map Elec W 62:685-8, 737-40 O 4-11 '13
- International Scandinavian transmission sys-tem; comparative costs of generating equip-ment and proposed 200-mile line from Troll-hättan to Copenhagen. Elec W 61:294-7 F 8 '13
- Keokuk (Ia.)—world's largest water-power plant. *il* plans Elec W 61:1167-8 My 31 '13
- Network of Waterbury-New Britain system of Connecticut company supplied from three hydroelectric and two steam stations. C. R. Harte. *il* Elec W 61:448-50 Mr 1 '13; Same. Elec Ry J 41:366-8 Mr 1 '13
- 150,000-volt air-break switches for southern Sierras transmission system. *il* Elec W 62: 234-6 Ag 2 '13
- Operating results with a 2300-volt single-wire ground-return transmission line of Benton Harbor-St. Joseph Ry. & light co. diag Elec W 62:595-6 S 20 '13
- Operation of high-voltage power systems. Eng Rec 67:651 Je 14 '13
- Operation of transmission lines. L. Hagood. Am Inst E E Pro 32:2163-89 D '13
- Power generation and transmission. Elec Ry J 42:551-60 O 4 '13
- Pressure drop in alternating-current lines. M. J. Eichhorn. Elec R & W Elec'n 62:106-8 Ja 11 '13
- Production and distribution of energy. S. Insull. J Fr Inst 175:561-600 Je '13
- Progress in electric power transmission prac-tice. L. Bell. Elec Ry J 41:31-2 Ja 4 '13
- Progress in transmission. R. D. Mershon. Elec W 61:11-2 Ja 4 '13
- Remote control through street mains. A. H. Allen. Power 37:414 Mr 25 '13
- Report of the committee of the Am. electric railway assn. on power distribution. Elec Ry J 42:730-4 O 14 '13
- 60,000-volt steel-tower line construction in southern California. H. W. Dennis. *il* diags Elec W 62:281-7 Ag 9 '13
- Stresses produced in a transmission line by breaking of a conductor. R. S. Brown. Elec W 61: 673-6 Mr 29 '13
- Study in depreciation. L. Bell. *il* Elec W 62: 379 Ag 23 '13
- Submarine transmission line in the Baltic sea. *il* Elec W 62:280-1 Ag 9 '13
- Surges, standing and traveling waves on overhead transmission lines. A. Still. Elec W 61:779-81 Ap 12 '13
- Tallulah Falls—hydroelectric development; transmission line and outdoor substations of the Georgia railway & power company. *il* plan Elec W 62:1309-16 D 27 '13
- Tata high-head development; 100,000-volt transmission into Bombay, India. map plans Elec W 62:950-5 N 8 '13
- Theory of the non-elastic and elastic caten-ary as applied to transmission lines. C. A. Pierce, F. J. Adams and G. I. Gilcrest. Am Inst E E Pro 32:1374-91 Je '13
- Thury power transmission in mines. S. F. Walker. diags Eng M 45:255-7 My '13
- Thury system in mines. plans Elec W 61: 759, 775-8 Ap 12 '13
- Transmission and distribution. Elec W 61: 1218-22 Je 7 '13
- Trollhättan, Sweden—a 200-mile, 90,000-volt, direct-current power transmission project in Sweden and Denmark. map Eng N 69: 617-8 Mr 27 '13
- Unified public utilities in central Illinois. *il* map Elec W 61:1146-56 My 31 '13
- Vesterdälälven power co. at Mockfjärd; sub-terranean Swedish generating plant. *il* plans Elec W 61:979-84 My 10 '13

Electric transmission *Continued.*

Victoria Falls and Transvaal power co. in South Africa, map Power 38:355-8 S 9 '13

See also Electric conductors; Electric driving; Electric lines; Electric plants; Electric plants—Substations; Hydroelectric plants

Electric trucks

Central station co-operation in the electric-vehicle industry, D. S. Martin, Eng M 46: 45-52 O '13

Commercial electric vehicles at New York auto show, Elec W 61:211 Ja 25 '13

Determining coasting ability of electric commercial vehicles, Sci Am 109:418 N 29 '13

Electric express handling at the North station, Boston, il plan Elec W 61:346-S F 15 '13

Electric pole truck, il Elec W 61:887 Ap 26 '13

Electric truck as a source of income to the central station, Elec W 61:301 F 8 '13

Electric-truck battery interchange system on mileage bases at Hartford, Conn, il Elec W 62:473-6 S 6 '13

Electric trucks for 1914—their improvements and characteristics, il Automobile 29:762-71 O 23 '13

Electric trucks for Northern Ohio traction & light company, Akron, il Elec Ry J 41:1089 Je 14 '13

Electric trucks in freight house service, il Ry Age 55:236-8 Ag 8 '13

Electric trucks in freight pier service, il Elec W 62:292-4 Jl 26 '13

Electric versus gasoline motor vehicles, S. G. Thompson, Eng M 46:112-4 O '13

Electric wagon in Denver—facts and figures for central-station managers, J. A. McMeel, il Elec R & W Elec'n 62:23-5 Ja 4 '13

Electrical features of commercial-vehicle automobile show in Chicago, Elec W 61:370 F 15 '13

Energy consumption of an electric truck on different street surfaces, Elec W 61:1040-1 My 17 '13

From the chauffeur's point of view, Sci Am 109:76 Jl 26 '13

Gasoline vs. electric trucks, Automobile 29: 27 Jl 3 '13

Government use of power trucks, W. R. Metz, Iron Age 91:391 Ap 17 '13

Grinnell electric car co., Detroit, builds trucks; 1,000-pound electric vehicle has four speeds, Automobile 28:841 Ap 17 '13

Importance of electric truck as central-station load, Elec W 61:179-80 Ja 25 '13

Moving goods economically outside the factory, D. Baker, il Ind Eng 12:509-11 D '13

Power truck emancipates the baggage man, J. B. Baker, Sci Am 108:340 Ap 12 '13

Storage-battery industrial trucks, A. D. Stevenson, il Elec W 61:112-3 Ja 11 '13

Tendencies and constructional details, il Automobile 28:24-33 Ja 2 '13

See also Motor trucks

Cost of operation

Central-station saving with electric trucks, Elec W 62:957 N 8 '13

Chicago efficiency bureau estimates that electric trucks would save \$15,775 yearly, Automobile 29:1153-9 D 18 '13

Commercial-truck cost comparison, Elec W 62:484 S 6 '13

Comparative cost of horse-drawn and electric vehicles in delivery service, Elec W 61: 1315 Je 14 '13

Comparative operating expenses of horse, electric and gasoline commercial vehicles, il Elec W 61:936-7 My 3 '13

Comparison of electric and hand trucks in freight house service, R. C. Weller, Ry Age 55:1153 D 19 '13

Cost data for horse-drawn and electric trucks, Eng Rec 67:429-30 Ap 19 '13

Electric truck about 50 per cent. cheaper than horse and wagon, J. A. Cleveland, Automobile 28:236 Ja 16 '13

Electric vehicles for meat delivery, Elec W 62:320 Ag 16 '13

Electric units

Kelvin and the kilowatt-hour, J. Gray, Elec W 61:359 F 15 '13

Units of energy; an appeal to simplify engineering calculations by avoiding the use of cumbersome conversion factors, C. Herring, Eng M 44:293-6 O '12

Electric vehicle association of America

Annual meeting of Chicago section, May, 1913, Elec W 61:1027-8 My 17 '13

4th annual convention, Chicago, Oct., 1913, Elec W 62:885-7, 900-1 N 1-8 '13

History, aims, activities and methods, A. Williams, Automobile 28:4 Ja 2 '13

Electric vehicles

Annual meeting of Chicago section of Electric vehicle Assn. of America, May, 1913, Elec W 61:1027-8 My 17 '13

Arthur Williams on the electric vehicle, Elec W 61:178-9 Ja 25 '13

Battery-conserving vehicle transmission system, diag Elec W 62:294-5 Ag 9 '13

Central station and the electric vehicle, Elec W 61:1129-30 My 31 '13

Central station co-operation in the electric-vehicle industry, D. S. Martin, Eng M 46: 45-52 O '13

Chicago electric-vehicle situation in 1913, Elec W 62:292-3 N 15 '13

Commercial electric vehicles at New York auto show, Elec W 61:211 Ja 25 '13

Conserving batteries is object of vehicle makers, diags Automobile 29:735-8 O 23 '13

Detroit service stations handle 170 electric a night, Automobile 29:862-4 N 6 '13

Development of the electric vehicle, Elec W 61:130-1 Ja 18 '13

Electric passenger vehicles for 1914, il Automobile 29:748-61 O 23 '13

Electric vehicle, Elec W 61:1228-9 Je 7 '13

Electric vehicle, Elec W 62:181-5 Jl 26 '13

Electric vehicle and the central stations, Elec W 62:900-1 N 8 '13

Electric vehicle association; 4th annual convention, Chicago, Oct., 1913, Elec W 62:885-7 N 1 '13

Electric vehicle at Boston; fall meeting of Electric motor car club, Elec W 62:576 S 20 '13

Electric vehicle convention at Boston, May, 1913, Elec W 61:1076-7 My 24 '13

Electric-vehicle cost data, Elec W 61:731 Ap 5 '13

Electric vehicle in Denver, Elec W 61:1040 My 17 '13

Electric vehicle industry, A. Williams, Automobile 28:317 Ja 23 '13

Electric-vehicle salon at Boston, Nov., 1913, il Elec W 62:1014-5 N 22 '13

Electric vehicles for 1913, il Automobile 28: 10-23 Ja 2 '13

Electric vehicles for street railway service discussed in the New England street railway club, Elec Ry J 41:37 Ja 4 '13

Electric vehicles in British Columbia, il Elec W 61:990-1 My 10 '13

Engineers view electric standardization of electric vehicles, Automobile 28:8-9 Ja 2 '13

Future bright for electric automobiles, Automobile 28:5-6 Ja 2 '13

Growing popularity of electric, Automobile 28:1161 Je 5 '13

Local activities in the electric vehicle field, Elec W 62:1216-7 D 13 '13

Meeting of Electric motor car club, Boston, May 1, 1913, Elec W 61:974 My 10 '13

Proper selling of electric cars, L. E. Burr, Automobile 29:111 Jl 17 '13

Rauch & Lang electric have worm drive, diags Automobile 29:520-1 S 18 '13

Service for electric, Automobile 28:898-9 Ap 24 '13

Status of the electric vehicle, W. H. Blood, jr, Elec W 61:22-3 Ja 4 '13

Storage battery and the automobile, L. Lyndon, Elec W 61:21-2 Ja 4 '13

Storage battery operation in electric, G. Taylor, Automobile 29:746-7 O 23 '13

Surveying the field, Automobile 28:1-3 Ja 2 '13

Electric vehicles *Continued.*

Thin plate is latest battery development. *diags Automobile* 29:742-4 O 23 '13
 What electric pleasure car can I buy? *Sci Am* 108:46 Ja 11 '13

See also Electric tractors; Electric trucks; Motor cars (railroad); Storage batteries

Electric water heaters

Domestic electric water heater. *il Elec W* 61:209 Ja 25 '13

Electric waves

Analysis of alternating-current waves by method of Fourier, with special reference to methods of facilitating computations. *F: W. Grover. U S Bur Stand Bul* 9:567-646 D 15 '13

Condenser-current method for the determination of alternating waveform. *F: Bedell. diags Elec W* 62:378 Ag 23 '13

Discussion on group IV papers (Miscellaneous subjects relating to rating). (See *Proceedings for February, 1913*) *Am Inst E E Pro* 32:2098-2112 N '13

Potential waves of alternating-current generators. *W. J. Foster. Am Inst E E Pro* 32:208-24 F '13

Proposed wave shape standard. *C. M. Davis. Am Inst E E Pro* 32:236-44 F '13

Wave form distortions and their effects on electrical apparatus. *P. M. Lincoln. Am Inst E E Pro* 32:378-88 F '13

See also Electric currents. Alternating; Wireless telegraph

Electric welding

Adaptability of electric welding. *G: Hills. il Met & Chem Eng* 11:419-20 J1 '13

Apparatus for electric-arc welding. *il Elec W* 62: 205-6 J1 26 '13

Arc welding process. *J. F. Lincoln. Iron Tr R* 52:637-8 Mr 13 '13

Cost data on electric welding. *Elec W* 62: 1120 N 29 '13

Development of electric welding. *il Iron Age* 91:421 F 13 '13

Electric-arc welder. *il Elec W* 61:744 Ap 5 '13

Electric arc welding. *il Met & Chem Eng* 11: 467-9 Ag '13

Electric arc welding. *il Ry Age (Mech ed)* 87:391-2 J1 '13

Electric arc welding. *Ry & Eng R* 53:742-3 Ag 2 '13

Electric-arc welding and other features of the San Francisco shops. *il Elec Ry J* 41: 880-2 My 17 '13

Electric arc welding on the Pacific coast. *il Elec Ry J* 41:67-70 Ja 11 '13

Electric welder in the steel foundry. *B. H. Reddy. Foundry* 41:141-2 Ap '13

Electric welding. *il Eng & Min J* 96:162-3 J1 26 '13

Electric welding. *C: A. Grams. Int Marine Eng* 18:355-6 Ag '13

Electric welding. *J. Grine. diags Ry Age (Mech ed)* 87:486-7 S '13

Electric welding and motor rejuvenation. *il Elec Ry J* 41:1102-5 Je 21 '13

Electric welding by first intention. *il Elec W* 61:368 F 15 '13

Electric welding for track repairs and rail joints. *il Eng N* 70:298-9 Ag 14 '13

New electric welding process. *B. L. Hackenberger. Eng M* 45:594-6 J1 '13

Winfield electric welding machine. *il Mach* 19: 68 S '12

Electric wire and wiring

American and European wiring practice. *A. H. Bernhard. Elec W* 61:102-3 Ja 11 '13

Battery-room wiring of electric-vehicle factory. *T. W. Poppe. il Elec W* 62:850-3 O 25 '13

Development of rubber-covered wire specifications for house wiring. *H. T. Wreaks. Elec W* 62:383-6 Ag 23 '13

European and American wiring practice. *A. H. Bernhard. Elec W* 62:646-7 S 27 '13

Experience in substation wiring. *T: G. Thurston. diags Power* 37:297-8 Mr 4 '13

Generation and transmission of hydro-electric power *E. A. Lof. il Eng M* 44: 903-20 Mr '13

Houses wired by dirtless workmen. *il Elec W* 61:1175-6 My 31 '13

Modern methods of electric wiring. *F. Broadbent. plans Elec R & W Elec'n* 62:90-4 Ja 11 '13

New terminal post office in New York. *L. B. Marks and J. E. Woodwell. il Elec W* 61: 137-43 Ja 18 '13

Parabolical overhead wiring for electric roads. *O. M. de Munnick. il Sci Am* 108:158 F 15 '13

Polarity of line wires. *A. E. Christophersen. Power* 38:14 J1 1 '13

Splicing wires and cables. *H. V. Talbot. il Elec W* 61:575-6 Mr 15 '13

Studying wiring diagrams. *Power* 37:787-8 Je 3 '13

Tariff hearings on schedules B and C (rods and wire). *Elec W* 61:229 F 1 '13

Wiring buildings with cinder-filled floors. *G: Hartley. plan Elec W* 61:458 Mr 1 '13

Wiring of large buildings. *Elec W* 61:681 Mr 29 '13

Wiring of shop buildings of steel construction. *E. G. Bradshaw. il Ind Eng* 13:170-3 Ap '13

Wiring of the Bankers' trust building. *N. Y. il Elec W* 61:1407-10 Je 28 '13

Wiring of the Continental and commercial bank building, Chicago. *Elec W* 62:542 S 13 '13

See also Electric cables; Electric conductors; Electric conduits; Electric distribution; Electric lighting; Electric lines; Electric transmission; Insulation; Telegraph; Telephone

Electrical accidents. *See* Electric protective apparatus; Electricity, injuries from

Electrical contractors' association. *See* Illinois electrical contractors' association

Electrical contractors' association, National. *See* National electrical contractors' association

Electrical development, Society for. *See* Society for electrical development

Electrical inspectors, Western association of. *See* Western association of electrical inspectors

Electrical supply jobbers' association
 November meeting. Hot Springs, Va. *Elec W* 62:1037-8 N 22 '13

Electricity

Acetylene-electric flame. *C. F. Lorenz. il Elec W* 61:511-5 Mr 8 '13

Dynamo and motor characteristics. *C. P. Poole. diags Power* 37:115-8 Ja 28 '13

Electric currents—action on concrete. *il Concrete Cem* 2:132-3 Mr '13

Electricity in mines. *H. S. Webb. Colliery* 33: 449-50, 489-92, 562-4, 629-30, 715-7; 34:47-9, 116-8, 182-1, 247-8, 309-10 Mr-1 '13 (to be cont)

McAndrew's floating school. *C. A. McAllister. Int Marine Eng* 18:447-8 O '13

Maintenance of electric equipment. *C. H. Quereau. Ry & Eng R* 53:569-70 Je 14 '13

Matter and electricity. *Elec W* 61:330 F 15 '13

Progress of electrical science in 1912. *A. E. Kennelly. Elec W* 61:3-4 Ja 4 '13

Relation of matter to electricity. *A. W. Goodspeed. J Fr Inst* 176:303-18 S '13

See also Armatures; Dielectrics; Dynamos; Electrons; Insulation; Magnetism; Phonograph; Plants. Effect of electricity on; Radioactivity; Stray currents; Telegraph; Telephone; Telpherage; Wireless telegraph; also headings beginning Electric and Electro

Distribution

See Electric distribution; Switchboards

History

Some historical inaccuracies in text-books on physics. *Brother Potamian. Elec W* 62: 1221-2 D 13 '13

Rates

See Electric lighting—Rates; Electric power—Rates

Terminology

See Electric terminology

Electricity, injuries from

- Artificial respiration with a lemon squeezer. A. C. Muller. *il Sci Am* 108:7 Ja 4 '13
 Don'ts for electricians. H. M. Nichols. *Power* 38:820-1 D 9 '13
 Electrical accidents. *Eng M* 44:405-6 D '12
 Fatal electric shocks from lighting fixtures. *Eng N* 69:857 Ap 24 '13
 Lessons from line troubles. *Elec W* 61:1179 Je 14 '13
 Principal causes of injury by electricity. *Sci Am S* 76:54-5 Ji 26 '13
 Resuscitation from electric shock. *Elec W* 61:1214 Je 7 '13; Same. *Elec Ry J* 41:1057-8 Je 14 '13
 Resuscitation from electric shock. *Mach* 19:661 Ap '13

Electricity and food

- Electricity and diet. *Sci Am* 108:10 Ja 4 '13
 Electrified chickens—electricity as a growth stimulator. *il Sci Am* 109:287 O 11 '13

Electricity in agriculture. See Electricity on the farm**Electricity in arts and crafts**

- Electric batik work. A. Gradenwitz. *il Sci Am* 108:584 Je 28 '13

Electricity in coast defense

- Electricity in the United States army and coast defense. E. M. Weaver. *Elec W* 61:226, 242-3 F 1 '13

Electricity in industry

- Recent improvements in the use of the electric furnace. *il Sci Am* 109:84-5 Ag 2 '13

Electricity in meat markets

- Electrical refrigeration for the butcher. R. L. Lloyd. *il Elec R & W Elec'n* 62:83-8 Ja 11 '13

Electricity in mining

- Acadia coal company's steam-turbine plant; generating station for the mines at Stellarton, Nova Scotia, burning culm. *il Elec W* 61:445-8 Mr 1 '13
 Alternating-current motors for the economic operation of mine fans. F. B. Crosby. *Am Inst E E Pro* 32:974-88 Ap '13; Discussion. 32:2244-53 D '13
 Application of electric energy to mining in the Cœur d'Alène. J. B. Fiske. *map Am Inst Min E Bul* 78:1023-31 Je '13
 Application of electric power to mining work; high speed air compressors and synchronous motors. C. A. Tupper. *il Iron Tr R* 52:35-9 Ja 2 '13
 Applications of motors in mining and mill installations in Colorado. W. J. Canada. *Elec W* 61:724-7 Ap 5 '13
 Central power stations in Pennsylvania effect operating economies. S. Rice. *il plan Iron Tr R* 53:545-9 S 25 '13
 Central station power for coal mines. C. W. Beers. *Am Inst E E Pro* 32:834-45 Ap '13; Discussion. 32:2206-13 D '13
 Central station power for mines: West Penn system. J. S. Jenks. *Am Int E E Pro* 32:990-6 Ap '13; Discussion. 32:2234-43 D '13
 Central-station service in coal mines. *Elec W* 61:1229-30 Je 7 '13
 Characteristics of substation loads at the anthracite collieries of the Lackawanna R. R. Co. H. M. Warren and A. S. Bieseker. *Am Inst E E Pro* 32:866-73 Ap '13; Discussion. 32:2234-43 D '13
 Electric cables for mines. W. White. *Mines & Min* 33:309-10 Ja '13
 Electric coal mining in central Illinois: O'Gara coal mine in Sangamon county. *il Elec W* 62:1211-2 D 13 '13
 Electric power costs at El Tigre. *Eng & Min J* 95:523-4 Mr 8 '13
 Electric power for underground winding at the new Heriot mine. Transvaal. *il Eng & Min J* 95:19 Ja 4 '13
 Electric power installation at El Tigre, Sonora, Mexico. J. W. Macdonald. *Am Inst Min E Bul* 76:581-5 Ap '13
 Electric vs. compressed air hoists. K. A. Pauly. *il Eng & Min J* 95:653-8 Mr 29 '13
 Electric winding at the West Rand mines, South Africa. *il Elec W* 61:1054-5 My 17 '13
 Electrically equipped coal mines in Nova Scotia. C. H. Wright. *il Elec W* 61:239-41 F 1 '13

- Electricity in mines. H. S. Webb. *Colliery* 33:449-50, 489-92, 562-4, 629-30, 715-7; 31:47-9, 116-8, 182-4, 247-8, 309-10 Mr-10 '13 (to be cont.)

- Electricity underground in relation to safety. H. H. Clark. *Eng & Min J* 96:354 Ag 23 '13
 Explosion-proof electric equipment for mining service. *il plan Eng N* 69:356-9 F 20 '13

- Mining loads for central stations. W. Sykes and G. Bright. *Am Inst E E Pro* 32:998-1014 My '13; Discussion. 32:2223-33 D '13

- Mining magnetite in Sweden. A. S. Rice. *il Iron Tr R* 53:953-60 N 27 '13

- Modern substation in the Cœur d'Alène mining district. J. B. Fiske. *il plan Am Inst E E Pro* 32:1770-82 S '13

- Pittsburgh meeting. *Am Inst. E. E.*, April 18-19, 1913. *Elec W* 61:870-2, 922-3 Ap 26-My 3 '13

- Puntledge river hydroelectric power plant used for operation of coal mines at Vancouver island. *il plan diags Eng Rec* 68:312-4, 349-51 S 20-27 '13

- Purchased power in coal mines. H. C. Eddy. *Am Inst E E Pro* 32:858-64 Ap '13; Discussion. 32:2206-13 D '13

- Safeguarding the use of electricity in mines. H. H. Clark. *Am Inst E E Pro* 32:848-56 Ap '13; Discussion. 32:2214-22 D '13

- Safety rules—electrical baulage underground. *Eng & Min J* 96:303-4 Ag 16 '13

- Sale of power on the Rand. A. E. Hadley. *map Eng & Min J* 96:106-8 Ji 19 '13

- Sources of electrical accidents in mines. H. H. Clark. *Eng M* 45:424-6 Je '13

- South African electric hoisting systems. *Eng & Min J* 95:608 Mr 22 '13

- Standardization of electric equipment. *Eng & Min J* 95:697-9 Ap 5 '13

- Thury power transmission in mines. S. F. Walker. *diags Eng M* 45:255-7 My '13

- Thury system in mines. *plans Elec W* 61:759, 775-8 Ap 12 '13

- Two-speed alternating-current motor for mine-fan drive. *il Elec R & W Elec'n* 62:111 Ja 11 '13

- Use of electricity in mining in the Butte district. J. Gillie. *Am Inst Min E Bul* 81:2305-7 S '13; Excerpts. *Eng & Min J* 96:410-1 Ag 30 '13

See also Mine signals

Electricity in refrigeration. See Ice—Manufacture**Electricity in the home**

- Unusual electrical equipment and construction for residence service. *il Elec R & W Elec'n* 62:26-9 Ja 4 '13

Electricity on ships

- Care of the dynamo on board ship. V. White. *Int Marine Eng* 18:402-4 S '13

- Diesel-electric-driven ship. Tynemouth. J. R. Wilson. *il Power* 38:641-3 N 4 '13

- Electric propelling machinery for Collier Jupiter. W. L. R. Emmet. *il plans Int Marine Eng* 18:223-7 Ag '13

- Electrical equipment of a modern battleship. H. A. Hornor. *il J Fr Inst* 176:173-88 Ag '13

- Electrical propulsion of ships. W. L. R. Emmet. *il diags J Fr Inst* 176:42-60 Ji '13

- Electrically-driven cargo boat. Tynemouth. C. Van Langendonck. *il Int Marine Eng* 18:520-2 D '13

- Electrically-driven vessel. Tynemouth. F. C. Coleman. *il Sci Am* 109:257 N 8 '13

- Electrically operated ship. Tynemouth. *il Elec W* 62:347-9 N 8 '13

- Hydraulic transmission on ships: the Föttinger transmitter. *il Eng M* 46:108-12 O '13

- Marine uses of electric storage batteries. E. L. Reynolds. *Int Marine Eng* 18:157 Ap '13

- Tests on a 10,000 horse-power Föttinger transformer; hydraulic gear for marine turbines. A. Gradenwitz. *il Sci Am* 108:536 Je 11 '13

Electricity on the farm

- Agriculture, electricity and irrigation; electrically driven pump. P. A. Bates. *il Sci Am* 108:472 My 24 '13

- Central station power for farmers. D. R. Palmquist. *il Sci Am* 109:495 N 29 '13

- Electricity on the farm—Continued.**
 Discussion on electricity on the farm (Bates).
 Am Inst E E Pro 32:89-98 Ja '13
 Electrical farming near Dayton, Ohio. Elec
 W 61:176-7 Ja 25 '13
 Electricity on farm of W. W. Mills near Mar-
 ietta, Ohio. il Elec W 61:210-1 Ja 25
 '13
 Electricity on the farm. Elec W 61:1236-8 Je
 7 '13
See also Electrohorticulture
- Electrification of benzene by friction.** Sci Am
 S 75:199 Mr 29 '13
- Electrification of railroads.** *See* Railroads—
 Electrification
- Electrochemical society.** *See* American elec-
 trochemical society
- Electrochemistry**
 Developments in electrochemistry. E. F. Roe-
 ber. Elec W 61:20-1 Ja 4 '13
 Digest of electrochemical U. S. patents. *See*
 monthly numbers of Metallurgical and
 chemical engineering
 Electricity and chemical action. H. C. Jones.
 Sci Am S 75:174-6 Mr 15 '13
 Electrochemistry and Batteries in 1912. Elec
 R & W Elec'n 62:11-2 Ja 4 '13
 23d general meeting of American electro-
 chemical society, Atlantic City, April, 1913.
 Elec W 61:763-5 Ap 12 '13
 24th general meeting of the American elec-
 trochemical society at Denver, Colo., Sept.,
 1913. Elec W 62:573-4 S 20 '13
 24th general meeting of the American electro-
 chemical society at Denver, Colo., Sept.,
 1913. Eng & Min J 96:551-2 S 20 '13
See also Electric batteries; Electric fur-
 naces; Electrolysis; Electrometallurgy;
 Electroplating
- Electrode holders**
 Electrode holder construction for electric fur-
 naces. il diags Met & Chem Eng 11:321-6
 Je '13
- Electrodes**
 Carbon and impregnated electrodes for arc
 lamps. A. T. Baldwin. Elec W 62:793-7
 O 18 '13
 Carbon electrodes for electrolytic cells. J.
 Härdén. Met & Chem Eng 11:242-4 My '13
 Electrode reactions. Met & Chem Eng 11:283-
 4 My '13
 Electrodes for electric furnaces: proper de-
 sign and manufacture. G. B. Barham. Sci
 Am S 76:55 JI 26 '13
 Experiments with furnace electrodes. il Met &
 Chem Eng 11:279-81 My '13
- Electrodynamometer**
 Tubular electrodynamometer for heavy cur-
 rents. P. G. Agnew. diag U S Bur Stand
 Bul 8:651-8 Mr 1 '13
- Electro-galvanizing**
 Electro-galvanizing process. S. W. Rowsbar.
 Foundry 41:437-40 O '13
- Electro-gilding.** *See* Gilding
- Electrohorticulture**
 Electrical stimulation of plant growth. Sci
 Am 108:520 Je 7 '13
 Experiments in electroculture near Dayton,
 Ohio. H. G. Dorsey. Elec W 62:1217-8 D
 13 '13
- Electrolysis**
 Electro-analysis of the copper alloys. J. G.
 Fairchild. il Met & Chem Eng 11:380-2 JI
 '13
 Electrolysis of aqueous solutions of the sim-
 ple alkaline cyanides. Met & Chem Eng 11:
 577 O '13
 Electrolysis of cyanide solution. Met & Chem
 Eng 11:575-7 O '13
 Electrolysis of low grade gold bullion. T. W.
 Bouchelle. Eng & Min J 95:238-40 Ja 25
 '13
 Electrolytic production of oxygen. Sci Am
 109:363 N 8 '13
 Production of caustic alkali and bleach. D. J.
 Allmand. il Sci Am S 76:22-3 JI 12 '13
See also Electrodes; Electrolytic corro-
 sion; Electrometallurgy
- Electrolysis committee**
 Meeting. New York, May 27, 1913. Elec Ry J
 41:1025 Je 7 '13
- Electrolytic corrosion**
 Electrolysis in reinforced concrete. E. B.
 Rosa. B. McCollum and O. S. Peters. Eng
 M 44:951-3 Mr '13
 Electrolytic corrosion of earthed metallic con-
 ductors. Elec Ry J 42:818-20 O 16 '13
 Electrolytic corrosion of iron in soils. Elec
 Ry J 42:422 S 13 '13
 Electrolytic corrosion of iron in soils. Eng
 Rec 68:34-5 JI 12 '13
 Electrolytic corrosion of iron in soils. B.
 McCollum and K. H. Logan. Am Inst E
 E Pro 32:1516-75 JI '13
 Errors in the interpretation of tests for elec-
 trolysis. C. Hering. Elec Ry J 42:1135-6
 N 29 '13
 Report of committee on Am. railway engi-
 neering assn. on electrolysis. Ry Age 54:798-
 10 Mr 21 '13
- Electrolytic refining.** *See* Electrometallurgy
- Electromagnets**
 Dynamo and motor field magnets. C. P. Poole.
 il Power 37:185-6 F 11 '13
 Primer of electricity. C. P. Poole. il Power
 37:373-5 Mr 18 '13
See also Commutators
- Electromagnets, Lifting.** *See* Lifting magnets
- Electrometallurgy**
 Advantages of small high speed electric
 furnaces. C. Hering. plan Met & Chem Eng
 11:183-7 Ap '13
 Electric steel for small castings. F. T. Snyder.
 Iron Age 92:332 O 23 '13; Same. Foundry
 41:468-9 N '13
 Electrodeposition of zinc. Eng & Min J 96:
 502 S 13 '13
 Electrolytic production of iron sheets and
 tubes, etc. K. W. Palmer and J. A. Bri-
 nell. Met & Chem Eng 11:197-203 Ap '13
 Electrolytic refinery in Wall street. il Met &
 Chem Eng 11:594-5 O '13
 Electrolytic refining of copper precipitate an-
 odes. W. F. Burns. Am Inst Min E Bul
 79:1163-7 JI '13
 Electro-metallurgy. Ry & Eng R 53:391 Ap
 26 '13
 Electro-metallurgy in Scandinavia. Eng &
 Min J 95:1203-5 Je 14 '13
 Great Falls electrolytic copper refinery. H.
 A. B. Motherwell. Met & Chem Eng 11:669-
 70 D '13
 Great Falls electrolytic plant. W. T. Burns.
 il Am Inst Min E Bul 80:2011-49 Ag '13;
 Same. Met & Chem Eng 11:509-18 S '13
 Production and properties of metallic films.
 Sci Am S 75:151 Mr 8 '13
 Production of electric steel castings. F. Sny-
 der. Foundry 41:468-9 N '13
 Progress in electrostatic ore dressing. Met
 & Chem Eng 11:581-2 O '13
 Recent Cottrell electric precipitation results.
 L. Bradley. Eng & Min J 96:247-8 Ag 9 '13
 Recent progress in electrolytic process for
 zinc. Met & Chem Eng 11:43-4 Ja '13
 World's output of electric steel. Iron Age 91:
 204 Ja 30 '13
See also Cyanide process; Electric fur-
 naces; Electrochemistry; Electrolysis; Elec-
 troplating; Electrotyping; Magnetic separa-
 tion of ores; Metallurgy; Smelting; Electric
- Electromotors.** *See* Electric motors
- Electrons**
 Electron theory of magnetism. Elec W 61:
 434 Mr 1 '13
 Emission of electrons from tungsten at high
 temperatures. O. W. Richardson. Sci Am
 S 76:102-3 Ag 16 '13
 Theory of mercury-vapor apparatus: the ac-
 tion of the Cooper Hewitt lamp construed
 on the basis of the electron theory. P. H.
 Thomas. Sci Am S 75:338-9 My 31 '13
See also Cathode rays; Electric discharg-
 es; Radioactivity; Transmutation of ele-
 ments

Electrophysics

Electrification of benzene by friction. *Sci Am S* 75:199 Mr 29 '13

See also Dielectrics; Oscillograms

Electrophysiology

Electrical properties of egg-white. E. F. Northrup. *J Fr Inst* 175:413-9 Ap '13

Electro-platers' association, National. *See* National electro-platers' association**Electroplating**

Application of chemistry in the plating room. E. P. Later. *Foundry* 41:101-3, 145-8, 187-9, 243-5, 331-3, 362-4 Mr-Je, Ag-S '13

Cleaning of steel and iron. C. S. Thompson. *Metal Ind n s* 11:119-20 O '13

Cobalt depositing bath. *Foundry* 41:440-1 O '13

Compilation of electro-plating hints. S. W. Rowsbar. *Foundry* 41:515-6 D '13

Copper and nickel-plating equipment at the works of the Underwood typewriter. J. Stehman. *Iron Age* 92:651-3 S 25 '13

Efficiency and economy in the plating room. H. E. Willmore. *Iron Metal Ind n s* 11:19-21 Ja '13

Electric cleaning of metals. W. Voss. *Metal Ind n s* 11:510 D '13

Electro copper plating of galvanized iron chain. C. H. Proctor. *Metal Ind n s* 11:84 F '13

Electrodeposition of brass and bronze. C. W. Bennett. *Metal Ind n s* 11:170-3 Ap '13

Electro-deposition of copper, brass, bronze, etc. E. Blassett, jr. *Metal Ind n s* 11:220-1 My '13

Electrodeposition of nickel. O. P. Watts. *Metal Ind n s* 11:261-2, 293-4, 334-6, 380-1 Je-S '13

Electroplating costs by the square foot. *Foundry* 41:158-9 Ap '13

Equipment and management of cleaning baths. S. W. Rowsbar. *Foundry* 41:190-2 My '13

Factors influencing the nature of electrolytic deposits. O. P. Watts. *Iron Metal Ind n s* 11:32-3, 83-4 Ja-F '13

Plating as a science. H. L. Haas. *Metal Ind n s* 11:433 O '13

Pure copper anodes. *Foundry* 41:441 O '13

Relation of chemistry to electro-plating. C. F. Burgess. *Metal Ind n s* 11:28-9, 78 Ja-F '13

Replating of flat ware. E. Blassett, jr. *Metal Ind n s* 11:331-2 Ag '13

Silver solution. S. Shoeld and G. B. Hogaboom. *Metal Ind n s* 11:29-30, 85-6, 301-3 Ja-F, Jl '13

Spotting-out problem and silver-plating. C. F. Burgess and L. T. Richardson. *Foundry* 41:502-3, 509 N '13; Same. *Iron Metal Ind n s* 11:477-9, 508-10 N-D '13

Symposium on electroplating. *Met & Chem Eng* 11:284-6 My '13

Three wire system for a plating room. C. G. Backus. *plan Metal Ind n s* 11:165-6 Ap '13

Troubles of the electro-plater. *See* monthly numbers of the *Foundry*

See also Electro-galvanizing; Electro-metallurgy

Electroscopes

How to make an electroscope. C. E. Benham. *Sci Am S* 75:170 Mr 15 '13

Electrostatics

See also Condensers (electricity)

Electrotechnical commission, International. *See* International electrotechnical commission**Electrotherapeutics**

Modern views of electro-therapeutics. *Sci Am S* 76:115 Ag 23 '13

Treating deafness by electricity. *Sci Am* 109:356 N S '13

Electrotyping

The bath. *Inland Ptr* 51:238-9 My '13

Electrotyping and stereotyping. C. S. Partidge. *See* monthly numbers of the *Inland printer*

Elephant Butte dam

Construction features of the Elephant Butte dam. U. S. reclamation service. *plan Eng N* 69:120-2 Ja 16 '13

Elephant Butte dam. *map Eng Rec* 67:557-8 My 17 '13

Elevated railroads

Derailments on Chicago elevated. *Elec Ry J* 41:253 F 8 '13

Improvements on Boston elevated system. *plans Elec Ry J* 41:357-65, 408-14 Mr 1-8 '13

Recent derailments on the Chicago elevated loop. *Eng N* 69:381-2 F 20 '13

Shifting girders and columns of the Chicago elevated railway. *plans Eng N* 70:306-9 N 6 '13

Shifting the column of the Chicago & Oak Park elevated Ry. *plan Eng N* 69:561 Mr 20 '13

See also Boston elevated railroad

Elevators

Device prevents sway of elevator cables. W. Kavanagh. *Iron Power* 37:734-5 My 27 '13

Economy of inclined dock elevator. *Iron Marine Eng* 18:55 F '13

Empire hydraulic elevator. *Iron Eng & Min J* 96:1123-4 D '13

Interesting repair to elevator plunger. *plan Power* 37:703-4 My 20 '13

Operating costs of hydraulic vs. electric elevators. J. Bailey. *Power* 37:641 My 6 '13

Prevention of elevator accidents. R. P. Bolton. *Iron Eng* 13:251-3 Je '13

See also Hoisting machinery

Elevators, Electric

Complete elevator manufacturing plant. *Iron plan Iron Age* 92:67-70 Jl 10 '13

Electric elevator questions and answers. A. C. Waldron. *Power* 37:668-9 My 13 '13

Electric elevator questions and answers. W. H. Pyatt. *Power* 37:832 Je 10 '13

Elevator as a central-station load. R. W. Charles. *Elec W* 62:1017 N 15 '13

New terminal post office in New York. L. B. Marks and J. E. Woodwell. *Iron Elec W* 61:193-4 Ja 25 '13

Otis inclined freight elevator. *Iron Ry Age* 54:849-50 Ap 11 '13

Woolworth building; elevator equipment, etc. C. E. Knox. *Iron diag Elec W* 62:125-31 Jl 19 '13

Elevators, Grain. *See* Grain elevators**Ellipses**

Engineers' study course: mensuration. *Iron Power* 37:468-70 Ap 1 '13

Embankments

Extra top width for new railroad embankments. *Eng Rec* 68:459 O 25 '13

Extra top width for new railroad embankments. T. B. Lee. *Eng Rec* 68:589-90 N 22 '13

Preventing erosion of highway embankments by a grass thatch. *Eng Rec* 68:134 Ag 2 '13

Proper construction of road embankments. G. C. Warren. *Iron Munie Eng* 45:424-9 N '13

Suspension dumping bridge for building embankments. *plans Eng N* 70:1024 N 20 '13

Templates for embankment slopes. M. D. Ewell. *Iron diag Eng N* 70:821-2 O 23 '13

See also Earthwork; Levees; Sea walls

Emergencies. *See* First aid in illness and injury**Emery wheels**

Emery and polishing wheels. *diag Metal Ind n s* 11:342 Ag '13

Tapers for safety emery wheels. C. G. Smith. *Iron Age* 91:610-1 Mr 6 '13; Same. *Iron Tr R* 52:635 Mr 13 '13; Same. *Mach* 19:623 Ap '13

Willet emery wheel guard. *Iron Tr R* 52:924 Ap 17 '13

Eminent domain

New York's power and the right of eminent domain. C. Herschel. *Eng Rec* 68:704-5 D 20 '13

New York's water powers and the right of eminent domain. *Eng Rec* 68:517-8 N 8 '13

Empire state gas and electric association

9th annual convention, New York, Oct., 1913.
Elec W 62:729-30 O 11 '13

Employees

Automatic rating of workmen; Springfield (Mass.) armory's system. Iron Age 91:811-2 Ap 3 '13

Personnel of the organization. H. Emerson. Iron Tr R 52:633-4 Mr 13 '13

Practical and scientific management: the Taylor system. G. Schlesinger. Ind Eng 13:376-80 S '13

Psychology of management. L. M. Gilbreth. Ind Eng 13:113-6, 161-6 Mr-Apr '13

Success secured by study of workmen's tendencies. B. A. Franklin. Eng M 45:669-73 Ag '13

See also Apprentices; Bonus system; Efficiency; Industrial; Electric railroads—Employees; Employment systems; Foremen; Industrial betterment; Labor and laboring classes; Old age pensions; Railroads—Employees; Street railroads—Employees; Welfare work

Employees, Municipal. *See* Municipal employees**Employees, Training of**

Educating illiterate employees. Iron Age 92:861-2 O 16 '13

Instruction methods at Rochester, N. Y. Elec Ry J 42:1336 D 27 '13

Psychology of management; teaching under scientific management. L. M. Gilbreth. Ind Eng 13:18-23, 66-70 Ja-F '13

School for trainmen at Buffalo. plan Elec Ry J 42:1236-7 D 13 '13

See also Apprentices; Corporation schools

Employees' welfare. *See* Industrial betterment; Welfare work**Employers' liability**

See also Accidents, Industrial; Safety devices; Workmen's compensation

Employers' welfare institutions. *See* Industrial betterment; Welfare work in industry**Employment systems**

Employment department. F. L. Jandron. Ry & Eng R 53:761-3 Ag 9 '13

How the employee regards want advertisements. Iron Age 91:899 Ap 10 '13

How to advertise for high-grade men. Iron Age 91:778-9 Mr 27 '13

Scientific employment of men; standardizing human character. H. Newton. Int Sci Am 109:68-9 J1 26 '13

Scientific selection of employees. K. M. H. Blackford. Iron Tr R 52:462-3 F 20 '13

Scientific selection of workmen. Eng Rec 67:171 F 15 '13

Selection and employment. F. L. Jandron. Eng M 45:562-7 J1 '13

Enamel and enameling

Art of enameling or the coating of steel and iron with glass. R. F. Nailler. Am Soc M E J 35:1479-92 O '13; Same. Sci Am S 76:238-9 N 29 '13; Same. Met & Chem Eng 11:695-8 D '13; Same cond. Iron Tr R 53:678-80 O 16 '13

Enameling iron and steel. R. F. Nailler. Iron Age 92:843-4 O 16 '13

Enameling process for cast iron sanitary ware. N. E. Frissell. plan Foundry 41:220-3 Je '13

Encyclopedia Americana

Encyclopedia Americana enjoined from using the name "Scientific American." Sci Am 109:362 N 8 '13

Encyclopedias

Encyclopaedia on the card-index system. Sci Am 109:213 S 13 '13

Engine test building. Details of. plans Eng Rec 67:42-3 Ja 11 '13**Engineering**

The artistic in engineering. Eng Rec 67:199 F 22 '13

Cases where engineering judgment differs. Eng N 69:375-6 F 20 '13

Engineer and the world's work. J. H. Cuntz. Stevens Ind 30:338-43 O '13

Engineer in the building of the republic. I.

Randolph. J Fr Inst 175:259-72 Mr '13

Engineering and the amenities: the beauty of appropriateness. A. Barr. Sci Am S 75:62-4 Ja 25 '13

Engineering and the beautiful. Eng Rec 67:530 My 10 '13

Engineering applications of geology. E. C. Eckel. Eng Rec 67: 667-8, 711-2 Je 14, 28 '13

Engineering development and human welfare. W. F. M. Goss. Ind Eng 13:354-7 Ag '13

Engineering research—the useless and the useful. Eng N 70:32-4 J1 3 '13

Imaginative faculty in engineering. I. Randolph. J Fr Inst 176:201-6 Ag '13

Influences affecting American engineering practice. W. F. M. Goss. Iron Age 91:1572-4 Je 26 '13; Excerpts. Power 38:38-9 J1 1 '13; Excerpts. Ry & Eng R 53:655-7 J1 5 '13

Investigation of existing engineering structures. H. R. Thayer. Eng N 70:609-10 S 25 '13

Motor truck in contracting and construction work. R. W. Hutchinson, jr. Il Eng M 45:793-816; 46:77-94, 237-18 S-N '13

Retrospect of the year 1912. Sci Am 108:2 Ja 4 '13

Review of the year 1912. Power 37:23-5 Ja 7 '13

30th annual convention of the A. I. E. E., Cooperstown, N. Y., June, 1913. Eng N 70:77-80 J1 10 '13

Value of foresight in engineering. Eng N 69:322-3 F 13 '13

See also Aeronautics; Aqueducts; Arches; Blasting; Boring; Bridges; Building; Building materials; Canals; Civil engineering; Docks; Drainage; Dredging; Electric engineering; Engineers; Engines; Foundations; Harbors; Hydraulic engineering; Irrigation; Machinery; Marine engineering; Masonry; Mechanical drawing; Mechanical engineering; Mechanics; Mensuration; Mining engineering; Municipal engineering; Railroad engineering; Railroads—Construction; Reclamation of land; Rivers; Roads; Sanitary engineering; Sea walls; Steam engineering; Steam engines; Strains and stresses; Strength of materials; Subways; Surveying; Tunnels and tunneling; Water supply; Water supply engineering; also headings beginning with Engineering

Accounting

American electric railway accountants' and engineering associations: report of joint committee on engineering accounting. Elec Ry J 42:852 O 17 '13

Efficiency as practiced by Portland light & power co. Ry & Eng R 53:1013 N 1 '13

Engineering accounting. J. V. Davies. Elec Ry J 42:864-5 O 17 '13

Estimates

Collection and use of construction cost data. Eng N 70:1305-7 D 25 '13

Harmonizing conflicting estimates. Eng Rec 67:198 F 22 '13

Interpreting restricted researches. Eng Rec 68:366-7 O 4 '13

Value of incomplete estimates. Eng Rec 67:31 Ja 11 '13

See also Quantity surveying

Examinations

Civil service examination questions for New York state. Eng N 70:1129-32 D 4 '13

Examination questions for a first-class engineer's license in Massachusetts. O. M. Jackson. Power 37:161-2 F 4 '13

Formulas

Comparison of column formulae. E. L. Lasier. Eng Rec 68:41-2 J1 12 '13

Construction and use of empiric formulas. C. T. Brady, jr. Eng N 70:163-5 J1 24 '13

Deflection method of calculating the strength of columns and stanchions. A. J. Murray. Int Marine Eng 18:298-301, 351-3 J1-Ag '13

Formulae for weights of cast tees and cross-
es. diags Eng Rec 68:236 Ag 30 '13

Engineering—Continued.

- Formulas. (Engineers' study course) Power 37:166-7 F 4 '13
 Power required for rolling metal. V: E. Edwards. Iron Age 52:1288-9 D 4 '13
 Prismoidal formulae to suit special cases. W: T. Case. Eng Rec 68:140 Ag 2 '13
 Suggested simplification for the value of C in Kutter's formula and a sewer discharge diagram. A. Boyd. Eng N 70:316 Ag 14 '13
See also Engineering notation
- History**
- Preservation of technical history urged. Power 37:475-6 Ap 1 '13
- Study and teaching**
- Good engineering teacher, his personality and training. W: T. Magruder. Stevens Ind 30: 363-74 O '13
 New Zealand school workshop. J: Peddie. Il Mach 21:208-9 N '13
 Principles versus practice in the teaching of engineering. Eng Rec 68:339 S 27 '13
 Teaching mathematics to engineering students. W. Whited. Eng N 70:538-9 S 18 '13
See also Engineering—Examinations; Engineering education; Engineering theses
- Tables**
- Convenient earthwork table. P. B. Hill. Eng N 70:25-6 O 23 '13
- Engineering, Civil.** *See* Civil engineering
- Engineering, Electric.** *See* Electric engineering
- Engineering, Hydraulic.** *See* Hydraulic engineering
- Engineering, Marine.** *See* Marine engineering
- Engineering, Mechanical.** *See* Mechanical engineering
- Engineering, Mining.** *See* Mining engineering
- Engineering, Municipal.** *See* Municipal engineering
- Engineering, Railroad.** *See* Railroad engineering
- Engineering, Sanitary.** *See* Sanitary engineering
- Engineering colleges**
 Co-operation between Massachusetts institute of technology and Harvard university. Eng N 69:733 Ap 10 '13
 Japanese engineering college. Eng N 69:670-1 Ap 3 '13
See also Engineering laboratories; also Massachusetts institute of technology; Minnesota. University—College of engineering
- Engineering competition**
 Needed reform in the conduct of engineering competitions. Eng N 69:1134-6 My 29 '13
- Engineering contracts.** *See* Contracts
- Engineering conventions**
 American institute of electrical engineers: a model for engineering conventions. Eng N 69:524 Mr 13 '13
 International engineering congress to be held at the Panama-Pacific international exposition, 1915. Ry & Eng R 53:496 My 31 '13
- Engineering education**
 Classics in engineering education. C: P. Steinmetz. Eng M 46:97-9 O '13
 Commercial training for engineers. F. H. M. Riley. Elec W 61:306 F 8 '13
 Development of skilled mechanics. C. J. Morrison. Mach 19:755-6 Je '13
 Education of a young mechanical engineer. J. Carnegie, Jr. Int Marine Eng 18:314 Jl '13
 Educational work in highway engineering. Eng Rec 68:114 Ag 2 '13
 Engineer as an executive. Elec Ry J 42:366-7 S 6 '13
 Engineering education in relation to training for engineering work; paper read before Am. soc. of C. E., 1912. E. McCullough. Ry & Eng R 53:42-4 Ja 11 '13
 Engineering English. Eng & Min J 96:1037-8 N 21 '13
 Engineering English. H. R. O'Brien. Eng N 70:914-5 N 6 '13
- Engineering workshops of the University of Sheffield. G: W. Burley. Il Mach 19:699-701 My '13
 Fitting engineering students for industrial management. Eng Rec 68:170 Ag 16 '13
 Foreign language as a tool in engineering training. F. W. Scholtz. Concrete Cem 2: 145-7 Mr '13
 French and German literature for electrical engineers. R. C. Powell; W. Whited. Eng N 69:1011-5 My 15 '13
 Opportunities that await the trained engineer. A. J. Himes. Sci Am 108:438 My 10 '13
 Present opportunities and consequent responsibilities of the engineer. A. C. Humphreys. Am Soc M E J 35:11-71 Ja '13; Excerpts. Stevens Ind 30:3-19 Ja '13
 Relative importance of principles and practice in education. J. Douglas. Met & Chem Eng 11:377-80 Jl '13
 Safety engineering should form part of every engineering course. G. Gilmour. Il Sci Am S 76:36-9 Jl 19 '13
 Study of foreign languages by engineers. R. Hering; F. Koester. Eng N 69:683-5 Ap 3 '13
 Study of modern languages in technical schools. W. H. Herschel. Eng N 69:412-5 F 27 '13
 Summer earnings of engineering students. Eng Rec 67:87 Ja 25 '13
 21st annual meeting of Society for promotion of engineering education, Minneapolis, June, 1913. Elec W 62:12-5 Jl 5 '13
 Vocational education in Philadelphia and vicinity. A. J. Rowland. Am Inst E E Pro 32:1400-27 Je '13
See also Apprentices; Engineering—Study and teaching; Engineering colleges; Engineering laboratories; Industrial education; Railroad education; Schools and shops, Co-operation of; Society for promotion of engineering education; Technical education
- Engineering ethics**
 Code of ethics for engineers. Iron Age 91: 150-1 Ja 9 '13; Same cond. Iron Tr R 52:415-6 F 13 '13
 Code of ethics of the Maine society of civil engineers. Eng N 70:1231-2 D 18 '13
 Code of ethics of the Pacific Northwest society of engineers. Eng Rec 68:50-1 Jl 12 '13
 Code of ethics of the Pacific Northwest society of engineers. W. H. Drane. Eng Rec 68: 112 Jl 26 '13
 Code of ethics of the Pacific Northwest society of engineers. H. F. Tucker. Eng Rec 68: 195 Ag 16 '13
 Ethical relation between the draftsman and the mechanical engineer. F: R. Hutton. Eng N 69:71-2 Ja 9 '13
 Ethics for engineers. Eng M 46:416d D '13
 Promoting and engineering ethics. W: B. McKinlay. Eng & Min J 96:415-6 Ag 30 '13
 Promoting and engineering ethics. C. E. Morris. Eng & Min J 96:557 S 20 '13
 Proposed code of ethics for chemical engineers. Eng N 69:159 Ja 23 '13
 Proposed code of ethics for engineers. Am Soc M E J 35:31-6 Ja '13
 Proposed code of ethics for mechanical engineers. Eng N 69:29-30 Ja 2 '13; Same. Eng Rec 67:95-6 Ja 25 '13
 Should an engineer make himself financially responsible for his estimates? Eng N 69:1185-7 Je 5 '13
 Status of engineering profession; papers before Am. inst. of consulting engineers, 1912. L: B. Stillwell; S. Whinery. Eng N 69:155-8 Ja 23 '13; Same abr. Eng Rec 67:118-20 F 1 '13
 Suggested code of ethics of the Oregon society of engineers. Eng N 69:1231 Je 12 '13
- Engineering laboratories**
 Electromechanics research laboratory at Columbia university. J: H. Morecroft. Il Elec W 61:727-8 Ap 5 '13
 Equipment of Karselslaer polytechnic institute. Il plans Iron Tr R 53:201-8 Jl 31 '13
 New engineering buildings at Minnesota. Il Iron Tr R 53:173-5 Jl 10 '13

Engineering laboratories *Continued.*

Training engineers at Yale. T: Wilson. II Power 37:772-4 Je 3 '13

See also Electric laboratories; Hydraulic laboratories; Metallurgical laboratories

Engineering law

Foreign requirements governing work under compressed air. P. Seurot. Eng N 70:566 S 18 '13

New York law governing work under compressed air. Eng N 70:307-S Ag 14 '13

Oversight in the compressed-air law. F. Richards. Eng N 70:425-6 Ag 28 '13

See also Contracts; Engineers—Licenses

Engineering libraries

Opportunities of engineering libraries. L. B. Krause. Eng Rec 67:545 My 17 '13

Engineering literature

Dewey decimal system of classification extended to engineering. Eng N 69:537-S Mr 13 '13

Methods of increasing the use of technical literature. L. B. Krause. Eng Rec 67:544-5 My 17 '13

See also Engineering reports

Engineering materials. *See* Building materials**Engineering news**

Suppression of technical news. Eng Rec 67:282 Mr 15 '13

Engineering notation

Report of the special committee of the I. E. C. on symbols. Am Inst E E Pro 32:2156-60 N '13

Structural engineering notation. Eng Rec 68:114-5 Ag 2 '13

Engineering organization

Boston elevated organization. Elec Ry J 41:240 F 8 '13

Human factors in engineering practice. J. Calder. Mach 19:597-9 Ap '13

Organization as affecting mining. A. J. Moorshead. Colliery 33:627-S Je '13

Organization for track-elevation work. Eng N 70:1307-S D 25 '13

Organization of an engineering construction company. Eng Rec 68:187-S Ag 16 '13

Organization: outline of essentials from engineering practice. T. C. Roberts. Met & Chem Eng 11:95-7 F '13

Reorganization of the Department of electricity, Chicago. Elec W 62:222-3 Ag 2 '13

See also Railroads—Management

Engineering records

Engineering job diaries. W. J. Parsons. Eng Rec 67:335-6 Mr 22 '13

Power-plant records in a small station. Power 38:415-6 S 16 '13

Engineering reports

Preparation of engineering reports. E. B. Stephenson. Eng N 70:1218-9 D 18 '13

Engineering societies

Engineering bodies in civic affairs. Eng Rec 67:114 F 1 '13

Foreign associations of consulting engineers. Eng N 69:449 Mr 6 '13

Joint recommendations of A. S. M. E. and A. I. E. E. committees. Elec W 61:174-5 Ja 25 '13

Making membership in an engineering society a tangible asset. Eng N 70:369-71 Ag 21 '13

Opportunity and a purpose for a local organization of a national engineering society. C. B. Wing. Eng N 69:999 My 15 '13

Proposed union of the Mining and metallurgical soc. of America and the Am. Inst. of M. E. Eng & Min J 96:466 S 6 '13

Publicity work by engineering societies. Eng N 69:1134 My 29 '13

Responsibility of engineering societies to their members. Eng N 69:1011-2 My 15 '13

Suggestion for the formation of an American engineering association. W. McClellan. Am Inst E E Pro 32:123 4-8 Je '13; Discussion. 32:2272-S D '13

Technical society as an influence in education. A. Reichmann. Ry & Eng R 53:465-6 My 17 '13

Verein deutscher ingenieure: largest engineering society in the world. Eng Rec 67:104-5 Ja 25 '13

Vitalizing local societies. Eng Rec 67:509 My 10 '13

See also names of societies, e.g. American society of civil engineers; Verein deutscher ingenieure

Engineering theses

Are college theses worth while? J. B. Hutchings, jr.; S. E. Thompson. Concrete Cem 2:293-5 Je '13

Improving engineering theses. Eng Rec 67:86-7 Ja 25 '13

Engineers

Appointment of consulting engineers on public-service commissions. Eng Rec 68:545 N 15 '13

Can engineers be trusted to arbitrate fairly and intelligently between public interests and property interests? Eng N 69:1187-9 Je 5 '13

Civic fields for engineers. O. V. P. Stout. Ry & Eng R 53:698-9 Ji 19 '13

Consulting and operating engineers. Power 37:639 My 6 '13

Consulting engineer and the profession. Eng Rec 67:574 My 24 '13

Discussion of the status of the engineering profession. Eng N 69:221-2 Ja 30 '13

Disregard for experience and relaxation of discipline. G. F. Swain. Ry & Eng R 53:852-3, 895-7 S 6, 20 '13

Drafting room opportunities. B. K. Read. Ry & Eng R 53:419-20 My 3 '13

Engineer and finance. Eng Rec 67:650 Je 11 '13

Engineer as a guardian of public credit. Eng N 69:80 Ja 9 '13

Engineer as an economist. Eng N 70:120 Ji 17 '13

Engineer for Interstate commerce commission. Eng Rec 68:694-5 D 20 '13

Engineer in industry. J. Calder. Iron Age 91:376-7 F 6 '13

Engineer in the building of the republic. I. Randolph. J. Fr Inst 175:259-72 Mr '13

Engineer members for the New York public service commissions. Eng N 69:271-2 F 6 '13

Engineer's annual report. C. T. McChesney. Power 37:666 My 13 '13

Engineers as municipal department heads. Eng Rec 68:585-6 N 22 '13

Engineers for New York public service commissions and as heads of New York city departments. Eng N 70:1045-6 N 20 '13

Engineers in civic affairs. R. P. Bolton. Heat & Ven 10:23-4 F '13

Engineers on public service commissions. Eng Rec 67:168 F 8 '13

Engineers' opportunities. Eng Rec 67:707 Je 28 '13

Fields for future expansion of efficiency engineering. F. W. Collins. Eng M 46:249-52 N '13

Free public service by engineers. Eng N 70:878 O 30 '13

Industrial need of technically trained men: scientific manufacturing and the opportunities it offers. W. B. Kaempffert. Sci Am 108:252 Mr 15 '13

Is it worth while? Power 37:460 Ap 1 '13

Larger demands on the industrial engineer. J. Calder. Iron Age 91:436-7 F 13 '13

Municipal need of technically trained men. R. Blankenburg. Sci Am 108:342 Ap 12 '13

Opportunities of the average man in the technical field. O. E. Huebner. Eng N 70:463-4 S 4 '13

Opportunities that await the trained engineer. A. J. Himes. Sci Am 108:438 My 10 '13

Opportunity of the engineer. D. S. Kimball. Am Mach 38:155-6 Ja 23 '13

Place of the engineer. Ind Eng 13:358-9 Ag '13

Present opportunities and consequent responsibilities of the engineer. A. C. Humphreys. Am Soc M E J 35:41-71 Ja '13; Excerpts. Stevens Ind 30:3-19 Ja '13

Present status of the engineer. E. H. Cowan. Eng N 69:435-6 F 27 '13

Engineers—Continued.

- Professional relations of the engineer. Eng Rec 67:408-10 Ap 12 '13
- Ratings for valuation engineers. J. B. Wright. Eng Rec 68:705-6 D 20 '13
- Relation of the consulting engineer to the operating engineer. F. W. Rose. Eng Rec 67:197 My 3 '13
- Relation of the engineer to public improvements. J. A. Bensch. Stevens Ind 30:357-62 O '13
- Relations of consulting and municipal engineers in Great Britain. H. C. H. Shenton. Eng N 70:206-8 J1 31 '13
- Removing handicaps of young graduate engineers. Eng Rec 67:555 My 17 '13
- Selecting engineers. Power 38:204 Ag 5 '13
- Sherman law and agreements between engineers not to enter competitions. D. B. Luten. Eng Rec 68:335-6 S 20 '13
- Some tendencies and problems of the present day and the relation of the engineer thereto. G. F. Swain. Eng N 69:1316-50 Je 26 '13; Same cond. Eng Rec 67:722-5 Je 28 '13
- Status of engineering profession: papers before Am. inst. of consulting engineers, 1912. L. B. Stillwell; S. Whinery. Eng N 69:115-8 Ja 23 '13; Same abr. Eng Rec 67:118-20 F 1 '13
- Status of the engineer. Eng N 69:34-7, 878-9, 965 Ja 2, Ap 24, My 8 '13
- Status of the engineer. D. S. Burnett. Eng N 69:528-9 Mr 13 '13
- Status of the engineer. G. B. Hazlehurst. Eng N 69:179-80 Ja 23 '13
- Status of the engineer. D. S. Perry. Eng N 69:434 F 27 '13
- Status of the engineering profession and a proposed employment bureau. W. Newbrough. Eng N 69:587-90 Mr 20 '13
- Technical society as an influence in education. A. Reichmann. Ry & Eng R 53:465-6 My 17 '13
- Value of the engineer. D. B. Pangburn. Power 38:769-71 N 25 '13
- See also* Electric engineers; Engineering ethics; Engineering societies; Locomotive engines; Mechanical engineers; Municipal engineers; Railroad engineers

Licenses

- Bill to license engineers in Iowa. Eng N 69:634-5 Mr 27 '13
- Bill to license engineers in New York and the Technical League; symposium. Eng N 69:72-6 My 8 '13
- English view of registration of engineers. Eng Rec 67:636 Je 7 '13
- Examinations and licenses for engineers. Eng N 69:680 Ap 3 '13
- Hearing on the bill to license engineers in New York. Eng N 69:789-90 Ap 17 '13
- Legislation to restrict the practice of engineering. E. McCullough. Eng N 69:636-8 Mr 27 '13
- Licensing engineers. Eng N 69:585 Mr 20 '13
- Licensing engineers in New York. Eng N 69:639-40 Mr 27 '13
- Licensing of engineers. Eng Rec 67:472-3 Ap 26 '13
- Licensing of engineers. W. H. Drane. Eng Rec 67:648 Je 7 '13
- Licensing of engineers. E. G. Kastenhuber, jr. Eng Rec 67:563 My 17 '13
- National association of stationary engineers license committee report. Power 37:210 F 11 '13
- New Jersey state license law. Power 37:618-9 Ap 29 '13
- Problem of protecting the younger members of the engineering profession. R. Trullinger. Eng N 69:1189-90 Je 5 '13
- Scientific analysis of engineer's license legislation. Eng N 69:792-3 Ap 17 '13
- Workings of the Wyoming law for licensing engineers. Eng Rec 67:387 Ap 5 '13
- Salaries**
- Engineers' wages. J. R. Belknap. Power 38:515 O 21 '13

- Recommended schedule of compensation of the Maine society of civil engineers. Eng N 70:1232 D 18 '13
- Salaries of engineers. Eng Rec 67:93 Ja 25 '13
- Standard salaries for engineers in municipal service. Eng Rec 67:483 My 3 '13
- Standardizing city engineers' salaries. Eng Rec 67:498-500 My 3 '13
- Study of incomes of technically trained men. D. E. Rice. Sci Am 109:116 Ag 9 '13
- Suggested salary schedule for New York city engineering employees. Eng N 69:110-1 Ja 16 '13

Engineers, Mechanical. *See* Mechanical engineers

Engineers, Municipal. *See* Municipal engineers

Engineers as witnesses

- Patent experting—a new field for engineers. D. Smith. Mach 19:313-1 Ja '13

Engineers club of Boston

- Opening of new building, 1913. Eng Rec 67: sup 41-2 F 1 '13

Engines

- Developments in prime movers. W. F. Durand. Elec W 61:7-9 Ja 4 '13
- Engine wrecks and remedies. W. M. Glass. Power 37:613 Ap 29 '13
- Ferranti on prime movers. Elec W 61:233-4 F 1 '13
- Generator and prime mover capacities. D. R. Rushmore and E. A. Lof. Am Inst E E Pro 32:710-20 Mr '13; Same cond. Power 37:449-50 Ap 1 '13
- Power features of the Ghent exposition. il Power 38:621-3 O 28 '13
- Preparing for the post-fuel age. il Sci Am 108:317 Ap 5 '13
- Prime movers: our debt to James Watt. S. Z. Ferranti. Sci Am S 75:138-9 Mr 1 '13
- Progress in power production. Sci Am S 75:138 Mr 1 '13
- Rolling-mill engines. R. L. Streeter. il Eng M 41:16-35 O '12
- Weight efficiency of prime movers. Sci Am S 75:299 My 10 '13
- See also* Automobile engines; Diesel engines; Fire engines; Gas and oil engines; Locomotives; Marine engines; Steam engines; Steam turbines; Traction engines; Turbines

Testing

- Utilizing power generated in engine tests. A. G. Popcke. Am Mach 38:855-6 My 22 '13

English channel tunnel

- Channel tunnel: revival of an old project. maps plans Sci Am S 76:306-8 N 15 '13
- France to England by tunnel: proposed electric railway scheme. map Eng M 46:446-8 D '13
- Proposed tunnel under English channel. C. O. Burge. map Eng Rec 68:499-500 N 1 '13

English dictionaries. *See* Dictionaries

English language

Study and teaching

- Engineering English. Eng & Min J 96:1037-8 N 29 '13
- Engineering English. H. R. O'Brien. Eng N 70:914-5 N 6 '13

Engraving

- Engravings—a suggestion. J. F. Tobin. Inland Ptr 51:61-3 Ap '13
- Process engraving. S. H. Horgan. *See* monthly numbers of the Inland printer
- See also* Color printing; Photo-engraving

Entropy

- Entropy-temperature and transmission diagrams for air. C. R. Richards. Ill U Eng Exp Sta Bul 63:1-20 '13
- Mollier diagram for ammonia. Power 38: 398-400 S 16 '13
- New entropy analog. V. Karapetoff. plans Eng N 69:406-9 F 27 '13

Epicyclic trains. L. E. Miller. Mach 20:57 S '13

Erdman act

Amendment of the Erdman act. Ry & Eng R 53:265 Mr 22 '13
 Erdman act amended; strike probably averted. Ry & Eng R 53:684-5 Jl 19 '13

Erie, Battle of Lake, 1813

Raising the United States brig Niagara. W. L. Morrison and A. G. Kessler. il Sci Am 108:580 Je 28 '13

Erie railroad

Maintenance on the electrified section of the Erie railroad. il Elec Ry J 41:998-1001 Je 7 '13
 Mechanical department organization. R. S. Mounce. Ry Age (Mech ed) 87:615-6 D '13

Erosion

Corrosion and erosion. H. M. Graham. Power 38:307-8 Ag 26 '13

Eruptive rocks. See Rocks, Igneous**Estimates. See Engineering—Estimates****Estuaries**

Channel- and beach-maintenance problem at Atlantic City. R. R. Raymond. map Eng N 70:150-4 Jl 24 '13
 Proposed improvement of an ocean bar at Atlantic City. N. J. L. M. Haupt. Eng N 70:523-4 S 11 '13

Ethics, Engineering. See Engineering ethics**Eugene, Oregon**

Municipal power plant. il Elec W 61:1033-6 My 17 '13

Eugenics

Progress of eugenics. Sci Am 169:159 D 13 '13
 Social problems and eugenics. Sci Am 108:426 My 10 '13

Europe

Europe's good roads. M. F. Mansfield. il Sci Am 108:36-7 Ja 11 '13

Evaporation

Allowance for evaporation from reservoir surfaces. H. M. Chittenden. Eng N 69:108 Ja 16 '13
 Data and results of evaporative trials. W. N. Polakov. Am Soc M E J 35:1766-9 D '13
 Evaporation. (Engineers' study course) Power 38:312-4, 346-7, 378-9, 410-1 Ag 26-S 16 '13
 Factor of evaporation. J. S. A. Johnson. Power 37:579-80 Ap 22 '13
 Factor of evaporation. A. A. Potter. Power 37:334 Mr 11 '13
 Factor of evaporation. L. C. Roberts. Power 37:751 My 27 '13
 Pan and raft equipment for water evaporation tests. diags Eng Rec 68:498 N 1 '13
See also Distillation

Evaporators

Evaporators and distillers. C. A. McAllister. Int Marine Eng 18:446-7 O '13
 Heat transmission and entrainment in vacuum evaporators. diags Met & Chem Eng 11:333-8 Je '13
 Tests upon the transmission of heat in vacuum evaporators. E. W. Kerr. diags Am Soc M E J 35:1525-58 O '13
 Tests upon the transmission of heat in vacuum evaporators. Met & Chem Eng 11:611-2 N '13

Evening and continuation schools

Continuation vs. trade schools. H. E. Miles. Am Ind 13:23 Jl '13
 Trade school costs and attendance. H. E. Miles. Am Ind 13:18 Ap '13
 Y. M. C. A. and vocational training. Am Ind 14:21-2 D '13

Everglades

Reclaiming the Florida everglades: joint report of Board of engineers. il map Eng N 70:835-7 O 23 '13; Eng Rec 68:454-7 O 25 '13

Evolution

Evolution from the standpoint of physics. A. J. Lotka. Sci Am S 75:345-6, 354, 379 My 31-Je 14 '13
 Evolution of man from the ape. Sci Am S 76:239 O 11 '13
 Questioned and unquestioned factors in evolution. Sci Am 109:238 S 27 '13

Excavation

Brick-plant savings with motor-operated clay excavator. il Elec W 62:1162 D 6 '13
 Construction of the Calumet-Sag canal. E. J. Kelly. il map Eng N 69:146-50 Ja 23 '13
 Electrically operated excavators on Calumet-Sag channel of Chicago drainage canal. il Elec W 61:409 F 22 '13
 Estimate of yardage in ditch excavation. Eng & Min J 96:407 Ag 30 '13
 Excavating a bridge abutment foundation through quicksand. F. I. Barrett. diags Eng N 70:608-9 S 25 '13
 Excavating with large scrapers for the University of Illinois armory. A. B. McDaniel. il Eng N 70:1302-3 D 25 '13
 Excavation at Panama. Ry & Eng R 53:190-1 Mr 1 '13
 Hydraulic excavation on Panama canal slides. Eng N 69:1047 My 22 '13
 Method of figuring excavation. M. R. Lewis. Eng Rec 67:647 Je 7 '13
 Method of figuring excavation. T. F. Nichols. Eng Rec 67:167-8 F 8 '13
 Overcoming difficulties in New York Lexington avenue subway: excavating rock and quicksand 50 feet below tide level under traffic in city streets. il diags Eng Rec 68:575-7 N 22 '13
 Program for completion of Culebra cut. Eng N 69:427 F 27 '13
 Twin Falls hydroelectric development. G. C. Newton. Eng Rec 67:581-2 My 24 '13
 Unit costs on steam shovel excavation. Munic Eng 45:429 N '13
See also Trenches; Tunnels and tunneling

Excavation, Subaqueous

Excavation for the Arrowrock dam, Idaho. C. H. Paul. il map Eng N 70:93-100 Jl 17 '13
 Methods of building cutoff wall using hydraulic nozzles for excavation and pump for removing spoil in the core trench of the Plute Irrigation dam. J. Jensen. il Eng Rec 68:522-4 N 8 '13
 New route for downbound vessels to facilitate Great lakes shipping. il Iron Tr R 52:30-4 Ja 2 '13
 Rock drilling in the Tennessee river. Eng Rec 68:488-9 N 1 '13
 Scow for submarine-rock drilling in deepening of the channel of East river. il plan Eng Rec 68:600-1 N 29 '13
See also Channels; Tunnels and tunneling, Subaqueous

Executive ability

Continuous rail for Chicago street traction: the story of a rush order. il Sci Am S 75:197-9 Mr 29 '13

Executive efficiency. Automobile 28:479 F 13 '13**Exhaust gas analysis. Automobile 28:288-91, 413-5, 466-7, 512-3 Ja 23, F 6-20 '13****Exhaust steam**

Heat accumulators and their use in exhaust-steam turbine plants. Ind Eng 13:319-21 Jl '13
 Should exhaust steam be wasted? P. B. Coulston. Colliery 34:41-2 Ag '13
 Utilization of exhaust steam on locomotives. Ry & Eng R 53:830-1 Ag 30 '13

Exhaust systems. See Dust removal**Exhibition buildings**

Architectural plan of Panama-Pacific exposition. Sci Am S 76:360-1 D 6 '13
 Construction work in Madison Square garden for an automobile exhibition. il Eng N 69:1164-6 Je 5 '13
 High eight-acre exposition building with timber frame. San Francisco. H. D. Dewell. il Eng Rec 67:553-4 My 17 '13
 Machinery hall. il Am Mach 38:881-2 My 22 '13
 Machinery hall, Panama-Pacific exposition. il diags Eng Rec 68:237-40 Ag 30 '13
 Panama-Pacific exposition. A. H. Markwart. il Eng N 70:895-904 N 6 '13
 Review of building methods old and new: Leipzig building and trades exposition. R. Grimshaw. il Sci Am 109:112-3 Ag 9 '13

Exits (building)

Life hazard in crowded buildings due to inadequate exits. H. F. J. Porter, plans Am Soc M E J 35:749-63 My '13; Same, Sci Am S 76:2-3 JI 5 '13; Same, Eng N 70:228-30 JI 31 '13

Expense distribution. See Cost accounting**Experiments on animals.** See Animals. Experiments on**Explosions**

Disastrous sewer explosion in Pittsburgh, Eng N 70:1157-9 D 4 '13
Effect of incombustible dusts on the explosion of gases, H. B. Dixon and C. Campbell, Sci Am S 76:118-9 Ag 23 '13
Explosion during aluminum granulation, Eng & Min J 96:914-5 N 15 '13

See also Boiler explosions; Coal mines and mining—Accidents and explosions; Flywheel explosions; Mine accidents; Mine explosions

Explosives

Advances in permissible explosives, Colliery 34:111 S '13
Analysis of black powder and dynamite, W. O. Snelling and C. G. Storm, U S Bur Mines Bul 51:1-76 '13
Energy of blasting explosives, Eng Rec 67:54-5 Ja 11 '13
Energy of various explosives, Eng & Min J 95:613-4 Mr 22 '13
Explosives for mining operations, C. Hall and S. D. Howell, Eng M 45:437-40 Je '13
Handling explosives in mines, E. Higgins, Eng M 46:279-81 N '13
Products of explosion, Eng & Min J 96:213-4 Ag 2 '13
Proposed explosives monopoly, Eng & Min J 96:544 S 20 '13
Safety rules—handling explosives, Eng & Min J 96:448-9 S 6 '13
Safety rules—storing and thawing explosives, Eng & Min J 96:591-2 S 27 '13
Selection of explosives for engineering work, Eng N 70:495 S 11 '13
Storage of explosives, plans Concrete Cem 2: 19-21 Ja '13
Underground magazines in rock for storing explosives, U plan Eng Rec 67:159 F 8 '13
See also Blasting; Coal mines and mining—Explosives; Detonators; Detonators, Electric; Dynamite; Inflammable liquids; Mines, Military

Testing

Modified form of stability test for smokeless powder and similar materials, H. C. P. Weber, U S Bur Stand Bul 9:119-29 Mr 15 '13
Tests of permissible explosives, C. Hall and S. P. Howell, U S Bur Mines Bul 66:1-397 '13
Tests to determine the proper selection of explosives, Eng Rec 67:523-4 My 10 '13

Explosives, Military

Progress in military explosives, W. J. Hawkins, U Eng N 69:16-24 Ja 2 '13

Exponential computer. L. Ross, Eng N 69:366-7 F 20 '13**Export trade**

C. I. f. foreign business quotations, A. M. Fisher, Iron Age 91:1975 My 1 '13
Export trade. See monthly numbers of American industries

Expositions

See San Diego—Panama-California exposition; San Francisco—Panama Pacific international exposition, 1915

Express cars. See Baggage and express cars**Express companies**

See also Carriers

Express service

Decision in the express rate cases, Ry Age 55:233-5 Ag 8 '13
Electric express handling at the North station, Boston, U plan Elec W 61:346-8 F 15 '13
Interstate commerce commission orders reduction in express rates, Ry & Eng R 53: 751-3 Ag 9 '13

Interstate commerce commission's revision of express rates, Eng N 70:719-20 O 9 '13
Providence, R. I., express and freight traffic, U Elec Ry J 41:574-7 Mr 29 '13

See also Parcel post

Extensometers

Use of the strain gage in testing materials, U Eng Rec 68:132-3 Ag 2 '13

Extralateral rights to quartz veins. Eng & Min J 96:537-43 S 20 '13**Eye**

Effects of radiation on the eye, Elec W 61: 10-7 My 24 '13
Human eye and the photographic camera, A. Gleichen, U Sci Am S 76:51 JI 26 '13
Radiant energy and the eye, M. Luckiesh, Elec W 62:844-6 O 25 '13
Theory of vision, M. H. E. Tscherning, Sci Am S 75:339 My 31 '13

See also Goggles; Spectacles

Eye-strain

Eyesight and typography, Sci Am S 75:171 Mr 15 '13
Illuminating topics at International school hygiene congress, 1913, Elec W 62:464-6 S 6 '13
Illumination and eye strain, E. M. Alger, Iron Tr R 52:743-4 Mr 27 '13

Eyes. See Eye**Eyre, Wilson**

Office and apartments of a Philadelphia architect, R. Caye, U Arch Rec 34:78-88 JI '13

F

Fabrics, Waterproofing of. See Waterproofing of textiles**Factories**

Aesthetics of industrial buildings, P. Behrens, U Sci Am S 76:129-1 Ag 23 '13
Allowable heights and areas for factory buildings, Eng Rec 67:614 My 31 '13
Allowable heights and areas for factory buildings, I. H. Woolson, Am Soc M E J 35:961-9 Je '13; Same cond, Iron Age 91:1399 Je 5 '13; Same cond, Eng M 45:733-4 Ag '13
Cellar space made available by the use of prismatic glass, J. Chittick, U Sci Am S 76:197 Ag 16 '13
Complete elevator manufacturing plant, U plan Iron Age 92:67-76 JI 10 '13
Constructing a ten-story concrete building, Long Island City, N. Y., U Eng Rec 68: 319-20 S 20 '13
Construction of a model factory building, U plans Concrete Cem 3:151-3 O '13
Details and heating of fireproof factory building, Homer City, Pa., E. J. Moore, Eng Rec 67:557 My 17 '13
Duff manufacturing company's plant, Pittsburgh: wide steel and glass one-story shop, with crane and telfer systems, for manufacturing hydraulic and screw lifting jacks, U diag Eng Rec 68:234-5 Ag 30 '13
Erecting one building around another: how the Champion machine & forging co., Cleveland is enlarging, U Iron Age 91:892 Ap 10 '13
Factory building equipment details, H. C. Spillman, U Iron Age 91:581-5 Mr 6 '13
Fire protection for factory workers, U diag Ind Eng 13:411-7 O '13
Home-made reinforced concrete factory: Nash engineering co., South Norwalk, Conn., U Iron Age 92:1149-52 N 20 '13
Isolated plant of gasoline engine factory: features of electrical and steam-heating station of Continental motor mfg. co., Detroit, Mich., H. C. Spillman, U plans Elec W 61:343-6 F 15 '13
Layout, design and equipment of industrial works, A. H. Morton, Ind Eng 13:289-92 JI '13
Machining and assembling automobile engines: routine of the Continental motor mfg. co., H. C. Spillman, U plan Iron Age 92:178-82 JI 24 '13

Factories—Continued.

- New plant of the Prest-O-Lite company, Indianapolis, making tanks for distributing acetylene gas. *il plan* Iron Age 92:489-95 S 4 '13
- New steel car plant of Haskell & Barker car co. at Michigan City, Ind. *il diag* Iron Age 91:590-3 Mr 6 '13
- Notes on factory layout. *Ind Eng* 13:471-2 N '13
- Partitions for factories and industrial buildings. H. G. Tyrrell. *il Eng M* 45:853-61; 46:53-62 S-O '13
- Plant for making automobile tool boxes; Globe machine & stamping co., Cleveland, O. *il Iron Age* 91:643-6 Mr 13 '13
- Plant of Duff mfg. co., Pittsburgh. *il plan* Iron Age 91:877-81 Ap 10 '13
- Reinforced-concrete factory buildings. H. C. Spillman. *il Ind Eng* 13:281-3 Jl '13
- Reinforced-concrete factory built under unusual conditions by Robbins & Myers co. at Springfield, O. N. D. Brainard. *il plan Eng Rec* 67:410-1 Ap 12 '13
- Reinforced concrete in factory construction at Milton, N. H. *il plans Concrete Cem* 3: 3-6 Jl '13
- Riveted pipe works at south San Francisco; the Schaw Hatcher co. *il plan* Iron Age 92:701-4 O 2 '13
- Specifications for wood block floors. *il Iron Age* 91:1006-7 Ap 24 '13
- Terminal and the city factory problem. *Ind Eng* 13:218 My '13
- See also* Cotton mills; Factory laws; Factory management; Factory sanitation; Iron works; Machine shops; Mills and millwork; Scientific management; Steel works; Textile factories; also subdivision Manufactures under names of subjects, e. g. Automobiles—Manufacture

Accounting

- Continuous cost keeping system maintained by Automatic transportation co., Buffalo. *il Iron Age* 91:88-90 Ja 2 '13
- Simple system for procuring cost data. *Iron Age* 91:757-9 Mr 27 '13
- Treatment of interest on manufacturing investment; symposium. *J Account* 15:231-44, 329-35, 427-32 Ap-Je '13

Heating and ventilation

- Fan blast system of factory heating. *Heat & Ven* 10:37-9 My '13
- Heating buildings of sawtooth construction. *Heat & Ven* 10:47-9 S '13
- Hot water heating for factories; forced circulation. C. L. Hubbard. *Dom Eng* 65:404-6 D 27 '13
- Office practice in estimating heating and ventilation for factories. E. W. Smallman. *Heat & Ven* 10:33 Ja '13
- Operating economies in heating large factory buildings. E. L. Wilder. *Heat & Ven* 10: 17-20 Jl '13; Same cond. *Power* 38:302-3 Ag 26 '13
- Rules for dust collection and shop ventilation. *Ind Eng* 13:390 S '13
- Unusual factory heating installation of the De Laval separator co. E. M. Lloyd. *il plan Dom Eng* 62:62-4 Ja '13

Lighting

- Economics of factory lighting. *Eng Rec* 68: 422 O 18 '13
- Factory lighting as a load for the central station. *Elec W* 62:676-7 O 4 '13
- Foundry and workshop lighting. A. Kitson. *il Metal Ind n s* 11:383-5 S '13
- Industrial lighting. C. L. Eshleman. *il Am Inst E E Pro* 32:41-54 Ja '13
- Industrial lighting; daylight illumination. *il Sci Am S* 76:117-8 Ag 23 '13

Factories, Box. *See* Box factories**Factory hygiene.** *See* Factory sanitation**Factory laws**

- New York state's new factory ventilation law. *Heat & Ven* 10:42-3 Je '13

See also Workmen's compensation

Factory location

- Locating an industry. *Ind Eng* 13:522-3 D '13

Factory management

- Automatic rating of workmen; Springfield (Mass.) armory's system. *Iron Age* 91:811-2 Ap 3 '13
- Bonus and rating for works executives. J. Nelson. *Iron Age* 91:1159-62 My 15 '13
- Buying, selling and advertising maxims. S. Dean. *Iron Age* 91:1002-4 Ap 24 '13
- Chemical engineer and industrial efficiency. W. M. Booth. *Sci Am S* 75:210-1 Ap 5 '13
- Co-operation. *Ind Eng* 13:75-6 F '13
- Cutting the factory costs with conveyor system. *il Iron Age* 91:349-53 F 6 '13
- Effective follow-up system for recording the progress of small manufactured parts. A. L. Valentine. *Mach* 19:926-30 Ag '13
- Efficiency management in gas tractor plant of the Hart-Parr co. *il diag plan* Iron Tr R 52:40-60 Ja 2 '13
- Efficiency methods used by Auto-Lite co. plan *Automobile* 29:698-9 O 16 '13
- Factor in ice-plant efficiency. P. Neff. *Power* 38:270 Ag 19 '13
- Factory organization and administration. W. L. Saunders. *Eng M* 46:257-60 N '13
- Factory record and tracing system. H. I. Arnold. *il Am Mach* 38:851-4 My 22 '13
- Heat and power in manufacturing processes. S. H. Bunnell. *Iron Age* 91:378 F 6 '13
- Increasing the efficiency of a brass manufacturing plant. P. W. Blair. *il Metal Ind n s* 11:13-4 Ja '13
- Inspection of materials and finished product. E. F. Roberts. *Ind Eng* 13:418-21 O '13; Same. *Iron Age* 92:158-60 Jl 17 '13
- Keeping track of the work in the shop by the bulletin board and route sheet. *il Ind Eng* 13:453-8 N '13
- Klaxon factory system seen in detail. *Automobile* 28:1066-9 My 22 '13
- Leak for factory profits; how money is lost in counting. *Ind Eng* 13:458-60 N '13
- Management of small versus large plants. S. Dean. *Iron Age* 91:1377 Je 5 '13
- New development in factory study; use of the Route model as a method of investigation. *il Ind Eng* 13:58-61 F '13
- Organization of large commercial and industrial establishments. B. Orenstein. *Eng M* 44:588-96 Ja '13
- Practical principles of rational management. A. H. Church. *Eng M* 44:487-94, 673-80, 894-903; 45: 24-33, 166-73, 405-11 Ja-Je '13
- Progress charts as a means of securing prompt delivery of goods. *Ind Eng* 13:485-6 N '13
- Records for the works publication bureau. A. D. Williams. *Iron Age* 91:1066-9 My 1 '13
- Relation of detailed planning and the cost of production. C. A. Harrington. *Eng M* 45:353-8 Je '13
- Storeroom system for a large plant. *Ind Eng* 13:342-6 Ag '13
- Using the suggestion box successfully. *Iron Age* 92:820 O 9 '13
- See also* Bonus system; Conveying machinery; Cost accounting; Employment systems; Machine shop management; Photography in industry; Premium wage system; Purchasing departments; Scientific management; Stores systems; Time study; Workshop management

Factory sanitation

- Drinking water in industrial plants. J. Sebroff. *Ind Eng* 13:261-3, 338-41 Je, Ag '13
- Example of factory sanitation in New York. *il Dom Eng* 64:66-7 Jl 19 '13
- Factory hygiene. J. D. Hackett. *Ind Eng* 13:427 N '13
- Human element in industry. W. Talbot. *Iron Age* 91:366-9, 418-20 F 6-13 '13
- Rules for dust collection and shop ventilation. *Ind Eng* 13:390 S '13
- Shop hygiene. W. Talbot. *Eng M* 45:94-7 Ap '13
- Successful factory drinking water system. W. J. Bitterlick. plan *Ind Eng* 13: 288-9 S '13

See also Factories—Heating and ventilation

Factory waste. See Waste products

Fairbanks, Alaska

Labor conditions at Fairbanks, Alaska. H. I. Ellis, Eng & Min J 36:1111-2 D 13 '13
Placer situation at Fairbanks. Eng & Min J 36:1167-8 D 20 '13

Falling bodies

Air resistance to falling bodies. A. A. Somerville. Il Sci Am 198:429 My 10 '13

Famines

Chinese famine and proposed flood prevention. C. D. Jameson. Il map Eng N 70:588-93 S 25 '13

Fans, Electric

Testing electric fans. Elec W 61:1019 My 17 '13
Testing electric fans. H. B. Brooks. Elec W 61:1039 My 17 '13

See also Fans, Mechanical

Fans, Mechanical

Air measurement by Pitot tubes: abstract of paper read before Am. Soc. M. E., 1912. C. H. Treat. plans Eng N 69:204-9 Ja 30 '13
Booster fans. Il Colliery 33:454-5 Mr '13
Equivalent opening of a ventilating system and the characteristic curves of a fan. M. Kloss. Am Soc M E J 35:692-4 Ap '13
Facts and theories relating to fans. D. M. Mowat. plan Colliery 33:429-39 Mr '13
Mine ventilating fans. Ind Eng 13:129 Mr '13
Running centrifugal fans in parallel. L. E. Lent. diag Power 38:851-2 D 16 '13
Size, capacity and power required for centrifugal fans. F. B. Gilbert, jr. Power 37:73-6 Ja 21 '13
Stine fan fitted with Hyatt roller bearings. Il Colliery 33:527-8 Ap '13

See also Fans, Electric; Mechanical draft

Fargo, North Dakota

Fargo declares a municipal dividend. W. D. Sweet. Munic Eng 44:121-2 F '13

Farm accounts. See Agriculture—Accounting

Farm buildings

Concrete block farm buildings built economically in England. Il Concrete Cem 2:142 Mr '13
Concrete manure pits readily built at moderate cost. Il Concrete Cem 2:86-7 F '13
Concrete on a Kansas farm. C. Dillon. Il Concrete Cem 3:183-4 O '13
How-to-do-it information for farm work. Il Concrete Cem 3:36 J1 '13
How to lay sanitary floors in dairy barns, poultry, sheep and hog houses. Il Concrete Cem 3:38-9 J1 '13

See also Poultry houses

Farm bureaus, County. See County farm bureaus

Farm engines. See Agricultural machinery; Motor plows

Farm machinery. See Agricultural machinery

Farm produce

See also Crops

Marketing

Conference on marketing and farm credits. Ry & Eng R 53:341 Ap 12 '13

Fashion

See also Automobile costumes

Fatigue

Fatigue and efficiency. Ind Eng 13:435-6 O '13
Occupational fatigue. Sci Am S 75:410-1 Je 28 '13

Fatigue in metals

Crystallization of steel through fatigue. F. Rogers. Iron Age 92:554-5 S 11 '13
Fatigue testing machine at Sibley college. G. B. Upton. Il diags Sci Am S 76:372-3 D 13 '13

Fats. See Oils and fats

Faults (mining)

Graphics applied to fault problems. E. R. Rice. Eng & Min J 95:609-12 Mr 22 '13

Federal mining & smelting company

New York times account of recent meeting. Eng & Min J 96:890-1 N 8 '13

Federal regulation of industry. See Government regulation of industry

Feed pumps. See Pumping machinery

Feed water

Effect of air in feed water. R. Carpenter. Power 38:331 D 30 '13
Feed water filters, pumps and injectors. C. A. McAllister. Il Int Marine Eng 18:393-5 S '13
Feed-water treatment. (Engineers' study course) Power 38:580-1, 616-7, 656-7, 691-6 O 21-N 11 '13
Lifting hot water. F. E. Nickel. Power 38:577-8 O 21 '13
Neco feed-water regulator. diag Power 38:34-5 J1 1 '13

See also Boiler scale; Boilers; Feed water heaters; Feed water purification

Feed water heaters

Calculation of feedwater heaters. Ind Eng 13:318 J1 '13
Combined open feed-water heater and hot-water meter. Il Power 38:659-60 N 4 '13
Elliott twin heater. Il Power 38:360-1 S 9 '13
Elliott vertical and horizontal heaters. Il diag Power 38:290-3 Ag 26 '13
Home-made feed-water heater. E. R. Pearce. Il Power 38:587-8 O 21 '13
Mr. Flannery's feed-water heater. J. C. Hawkins; G. Anderson. Power 37:513-4 My 6 '13
Mr. Flannery's feed water heater troubles. E. H. Robie; G. McMillan. Power 37:465-6 Ap 1 '13
Piping for feedwater heater. G. H. Kimball. plan Power 38:175-6 J1 29 '13
Simple feed water heater. A. R. Kenner. diag Eng & Min J 95:327-8 F 8 '13
Utilization of exhaust steam on locomotives. Ry & Eng R 53:830 Ag 30 '13

Feed water heating

Feed water heating and pumping. plan Power 37:146-8 F 4 '13
Feed-water heating for locomotives. Il Power 38:387-9 S 16 '13
Superheating and feed water heating: theoretical discussion checked by results on Egyptian state railways. F. H. Trevithick and P. J. Cowan. Ry Age 54:1543-8 Je 20 '13

Feed water meters. See Water meters

Feed water pumps. See Pumping machinery

Feed water purification

Boiler feed-water filter. plan Eng & Min J 96:1173-4 D 20 '13
Experience with water softening plants. M. Dickman. Power 37:386-7 Mr 18 '13
Feed-water treatment. (Engineers' study course) Power 38:580-1, 616-7, 656-7, 691-6 O 21-N 11 '13
Filtering feed water. C. S. Linch. Int Marine Eng 18:240-1 Je '13
How the Brier Hill steel co. purifies its boiler water. Il Iron Tr R 53:1135-6 D 25 '13
Soda-ash for boiler waters. C. H. Bromley. Power 38:412-3 S 16 '13
Soda-ash for boiler waters. J. C. Hawkins. diag Power 38:795 D 2 '13
Tropical feed-water filter plant. C. C. Semple. Il plan Power 38:810-2 D 9 '13

Feeders. See Electric distribution

Feldspar

Mining and treatment of feldspar and kaolin. A. S. Watts. Il map U S Bur Mines Bul 53:1-164 '13

Fellowships, Industrial. See Industrial fellowships

Felt

Pertinent facts regarding felt polishing wheels. F. Dolge. Metal Ind n s 11:86 F '13

Fence posts

Relative advantages of the different kinds of fence posts. Ry Age 51:627-9 Mr 20 '13

Fence posts, Concrete

Concrete fence posts. H. P. Taylor. Concrete Cem 1:92 D '12
Concrete fence posts for factory inclosure. Il diags Concrete Cem 3:54-5 Ag '13
Steel and concrete fence posts. Eng N 69:856 Ap 24 '13

Fences, Concrete

- Concrete fences for elevated tracks. *il* Concrete Cem 3:129 S '13
Fence of concrete posts and rails. *il* plan Concrete Cem 3:162-3 O '13

See also Fence posts, Concrete

Fenders. See Car fenders**Ferguson, David**

- New York's public printer. S. H. Horgan. *por* Inland Ptr 52:79-80 O '13

Ferranti, Sebastian Z. de

- Ferranti and his turbine. F. R. Low. *por* Power 38:908-11 D 30 '13

Ferrite

- Crystalline growth of strained ferrite. A. Sauveur. *il* Iron Age 91:258-60 Ja 23 '13
Formation of ferrites in roasting blend. G. S. Brooks. *bibliog* Am Inst Min E *bul* 77: 829-42 My '13

Ferroalloys. See Iron alloys**Ferromanganese**

- Duty on ferro. Iron Tr R 52:1262 My 29 '13
Ferromanganese duty. Iron Age 91:1016-7 Ap 24 '13

Ferrosilicon

- Swedish methods of packing ferrosilicon. Met & Chem Eng 11:87-8 F '13

Ferrovanadium

- Determination of sulphur in ferro-vanadium. W. W. Clark. Met & Chem Eng 11:256 My '13
Determination of vanadium in ferro-vanadium. W. W. Clark. Met & Chem Eng 11: 195-7 Ap '13
Technical analysis of ferrovanadium and its products. W. W. Clark. Met & Chem Eng 11:91-2 F '13

Ferryboats

- Ferry boat South Jacksonville. *diags* Int Marine Eng 18:512-4 D '13
Large motor driven ferry. Bridgit. *il* Int Marine Eng 18:477 N '13
Sample of old-time engineering skill; the ferryboat Long Beach. C. S. Linch. *il* plan Int Marine Eng 18:38-100 Mr '13
Side wheel ferry Leschi. *il* plan Int Marine Eng 18:470 N '13
Steel screw ferry-boat Edward T. Jeffery. J. B. Shipley. *il* Int Marine Eng 18:428-31 O '13

Fertilizers and manures

- Cyanamid in agriculture. E. J. Pranke. Eng M 45:132-4 Je '13
Electrochemical fertilizer. E. F. Roeber. Elec W 61:21 Ja 4 '13
Production and consumption of chemical fertilizers in the world. Eng & Min J 96:776 O 25 '13
Radio-active manures. Sci Am S 76:27 Jl 12 '13

See also Phosphates; Potash; Soil inoculation

Fevers

See also Typhoid fever

Fibers

See also Silk cotton; Textile industry and fabrics

Field mice

- War against field mice in France. J. Boyer. *il* Sci Am 109:114 Ag 9 '13

Filene store, Boston, Mass. *il* plan Arch & Bldg 45:11-2 Ja '13**Files and filing (documents)**

- Drawing cabinet and filing system. *diags* Eng & Min J 95:372-3 F 15 '13
Efficient methods of handling correspondence. J. L. Hanna. Ry Age 54:61-3 Ja 10 '13
Filing and indexing system for Boston harbor development work. F. H. Jones. Eng N 69:1333-4 Je 26 '13
Filing articles and data. F. C. Everitt. *il* Mach 19:354-5 Ag '13
Simple system for filing and handling tracings and prints. F. Buch. *il* Eng M 45: 546-61 Jl '13

- System in technical offices. A. L. Heywood. Eng Rec 67:353-4 Mr 29 '13

- Use of interstate commerce commission account numbers for correspondence filing. W. S. Wollner. Ry Age 55:1117 D 12 '13
Why the municipal office needs modern system. E. H. Gilman. Munic Eng 44:499-504 Je '13

Files and rasps

- Manufacturing the circular cut file. C. L. Lucas. *il* Sci Am S 75:92-3 F 8 '13
Manufacturing the Vixen file. C. L. Lucas. *il* Mach 19:11-4 S '12

Filing

- Work of filing. Sci Am S 75:99 F 15 '13

Films. See Photography—Films**Filter paper**

- Manufacture of Swedish filter paper. G. Fornstedt. Sci Am S 76:219 O 4 '13

Filters and filtration

- Abandonment of plans to filter the Croton water. Eng Rec 67:622-3 Je 7 '13
Abuses in water filtration. Eng Rec 67:23-4 Ja 4 '13
Albany, N. Y. filters flooded. *il* Eng Rec 67: 450 Ap 19 '13
Alum in slow sand filtration. W. F. Wells. Eng M 46:260-2 N '13
Application of the Moore filter to rapid filtration and purification of sewage. Met & Chem Eng 11:58-9 Ja '13
Boiler feed-water filter. *plan* Eng & Min J 96:1173-1 D 20 '13
Clarifying city water supplies by filtration in American practice. G. W. Fuller. Eng M 44:509-12 Ja '13
Cleveland, Ohio—water filtration. R. W. Pratt. Eng N 69:1078-9 My 22 '13
Condition of wash water in mechanical filters. Eng Rec 68:420 O 18 '13
Construction of the St. Louis filters. E. E. Wall. *il* plan Eng N 70:1329-31 D 25 '13
Evanston, Ill. filter plant. *il* plan Eng Rec 68:578-9 N 22 '13
Experiments on water purification; work of Mass. state board of health, 1911. Eng Rec 67:50-2 Ja 11 '13
Filter for boiler feed and cooling water at Omaha. *il* Eng Rec 68:546 N 15 '13
Filtering feed water. C. S. Linch. Int Marine Eng 18:240-1 Je '13
Filtration plant at McKeesport, Pa. E. C. Trax. *il* Munic Eng 45:14-9 Jl '13
Filtration plant at the Great Lakes naval training station, Great Lakes, Ill. *plans* Eng Rec 67:205-6 F 22 '13
Frost damage to Montreal filters. F. E. Field. *il* *diags* Eng Rec 68:566-9 N 22 '13
Krause absorbent oily condensate filter. *diags* Power 38:710 N 18 '13
Mechanical filtration plant at Clarksburg, W. Va. H. W. Streeter. *il* Eng Rec 68:7-9 Jl 5 '13
Micro-organism troubles and mechanical filters. F. H. Stover. Eng Rec 68:100-1 Jl 26 '13
Negative-head patent decision in case of mechanical filters at Harrisburg. Eng Rec 68:287-8 S 13 '13
New York water filtration controversy; symposium. Eng N 69:1191-7 Je 5 '13
Operating results of Terre Haute filters. Eng Rec 67:348 Mr 29 '13
Pittsburgh's slow-sand filtration plant; preliminary treatment of water by contact baffles of coarse stone and A-frame baffles. *il* plan Eng Rec 67:437-9 Ap 19 '13
Rapid filtration plant at Columbus, Indiana. *plans* Eng Rec 67:262-3 Mr 8 '13
Rapid filtration system; the Paterson plant at the Cheltenham water works. *plan* Eng M 45:883-6 S '13
Reports on filtering the Croton water-supply. New York city. Eng N 69:1082-91 My 22 '13
Results of double filtration at Steelton, Pa. during 1913. Eng Rec 67:218 F 22 '13
Rock Island arsenal filter plant. *il* *diags* Eng Rec 68:699-10 N 29 '13
Rotary-drum vacuum filter. *diags* Met & Chem Eng 11:345 Je '13

Filters and filtration. Continued.

- St. Louis mechanical water filters. *E*: E. Wall. *il* plans *Eng* N 70:308-13 O 23 '13
- Second report on mechanical filters for New York's water supply. *Eng* Rec 67:sup 5:1-10 My 10 '13
- Standardization of rapid filter design. *Eng* Rec 67:254-5 Mr 8 '13
- Torresdale filter plant at Philadelphia. *F. D.* West. *Eng* Rec 68:290 S 13 '13
- Tropical feed-water filter plant. *C. C.* Semple. *il* plan *Power* 38:810-2 D 9 '13
- Tuning up filters at Albany, Oregon. *Eng* Rec 68:553-4 N 15 '13
- Tuning up the Minneapolis filter plant. *W. N.* Jones and *L. I.* Birdsall. *il* plan *Eng* Rec 67:680-4 Jo 21 '13
- Use of chloride of lime with pressure filters. *F. D.* West. *il* *Eng* Rec 67:65-6 Ja 18 '13
- Water filters of various types and their dangers. *F. W.* Tower. *Dem* *Eng* 61:27-8 Ji 26 '13
- Water filtration hold-up in New York city. *Eng* N 69:1075-7 My 22 '13
- Water purification at Philadelphia during 1911. *Eng* Rec 67:93-5 Ja 25 '13
- See also* Air filters; Bag-houses; Ore treatment; Sewage disposal; Water purification

Filtration. *See* Filters and filtration

Finance

See also Budgets; Foreign exchange; Holding companies; Income; Interest; Purchasing departments

Finger guards

Metal finger guards for machine operators. *il* *Sci* *Am* S 76:491 D 27 '13

Finger prints

Finger print detection by chemical means. *il* *Sci* *Am* 109:367 N 8 '13

Fir

- Comparative tests on fir cross-arms. *il* *Elec* W 61:318 F 8 '13
- Natural and artificial seasoning of Douglas fir for treatment. *F. D.* Beal. *Ry* *Age* 54:174-5 Ja 21 '13
- Specifications and rules for Douglas fir car material. *Ry* *Age* 55:557-8 S 26 '13
- Treatment of Douglas fir with creosote oil. *G. A.* Coleman. *Ry* *Age* 51:346-7 F 21 '13

Fire

- Chemical balance and the fire waste problem. *S. K.* Koon. *Sci* *Am* 108:234 Mr 8 '13
- See also* Combustion; Flames; Fuel; Heating; Smoke; Spontaneous combustion; also headings beginning Fire

Fire alarms

- Automatic fire alarm. *Sci* *Am* 108:180 F 22 '13
- Electrical fire protection. *il* *Sci* *Am* 109:245 S 13 '13
- Fire alarm system using the telephone wires. *Munic* *Eng* 44:565-6 Je '13
- New automatic fire alarm. *F. A. J.* Fitzgerald. *il* *J* *Fr* *Inst* 176:575-82 N '13; *Same*. *Sci* *Am* S 76:377-8 D 29 '13

Fire apparatus, Motor

- Advantage of motor combinations. *T. E.* Heath. *Munic* *Eng* 45:296 S '13
- Care of automobile apparatus. *D. J.* McCue. *Munic* *Eng* 45:171-2 N '13
- Care of motor driven fire apparatus. *J. M.* Taylor. *il* *Munic* *Eng* 45:314-20 O '13
- Care of motor fire apparatus. *F. H.* Bemis. *Munic* *Eng* 45:379-81 O '13
- Comparative fire apparatus costs. *F. L.* Stetson. *Munic* *Eng* 45:378 D '13
- Fire horses are doomed. *C. J.* Lauer. *il* *Munic* *Eng* 44:531-6 Je '13
- Maintenance of motor driven fire apparatus. *O. B.* Mercer. *il* *Munic* *Eng* 45:472-4 N '13
- Maintenance of tractor motor. *P. J.* Reddy. *il* *Munic* *Eng* 45:383-5 O '13
- Modernizing the Hartford, Conn., fire department. *D. A.* Nicholls. *il* *Munic* *Eng* 44:359-60 Ap '13
- Motor driven combination. *A. P.* McDavit. *Munic* *Eng* 45:474-5 N '13

Motor driven combinations in fire department service. *S. F.* Hunter. *Munic* *Eng* 41:533 Jo '13

Motor driven fire apparatus as an investment. *J. E.* Strewsbury. *Munic* *Eng* 45:475-6 N '13

Motor fire apparatus. *H. W.* Perry. *il* *Munic* *Eng* 45:266-16 S '13

Motor fire insurance patrols. *E. T.* Shepherd. *il* *Munic* *Eng* 45:165-6 Ag '13

Motors reduce costs. *Munic* *Eng* 45:391-2 O '13

Oakland, Cal. is motorizing. *N. A.* Ball. *il* *Munic* *Eng* 44:268-9 Mr '13

Type of motor fire apparatus in British use. *T. Reece*. *il* *Munic* *Eng* 45:438-9 N '13

See also Fire engines, Motor

Fire boxes, Locomotive. *See* Locomotive fire-boxes

Fire brick

Conditions to be met in blast furnace linings. *A. N.* Diehl. *Iron* *Age* 92:1165-7 N 29 '13

Electric furnaces, their design, characteristics and commercial application. *W. M.* Johnson and *G. N.* Sieger. *il* *Met* & *Chem* *Eng* 11:645-6 N '13

Firebrick specifications. *F. L.* Ray. *Power* 38:862-3 D 16 '13

Refractories for the modern boiler plant. *K.* Seaver. *il* *Power* 38:583-6 O 21 '13

Refractories in the iron and steel industry. *H. W.* Croft. *Iron* *Age* 92:1163-5 N 29 '13

Same. *Iron* *Tr* *R* 53:1138-40 D 25 '13

Testing firebrick for use in coke ovens. *diag* *Eng* & *Min* *J* 56:833 N 1 '13

Fire clay

Fire-clay deposits of Canada. *H.* Ries. *il* map *Am* *Inst* *M* *E* *Bul* 75:423-12 Mr '13

Fire clay for foundry use. *E. H.* Oehler. *Foundry* 41:108 Mr '13

Refractories in the iron and steel industry. *H. W.* Croft. *Iron* *Age* 92:1163-5 N 29 '13

Same. *Iron* *Tr* *R* 53:1138-40 D 25 '13

Fire damp. *See* Firedamp

Fire departments

- Baltimore high-pressure fire service. *J. B.* Scott. *il* *diag* *Am* *Soc* *M* *E* *J* 35:371-419 Mr '13
- Drilling the firemen. *Munic* *Eng* 11:441-2 My '13
- Maintenance of fire department grounds. *W. E.* Bideker. *il* *Munic* *Eng* 45:367-9 O '13
- Standardization of hose and hydrant connections. *Eng* N 70:289 Ag 14 '13
- See also* Fire extinction; Fire protection; Fire service

Fire engine cars

Chicago elevated railways fire engine car. *il* *Elec* *Ry* *J* 41:557-8 Ap 26 '13

Fire engines

- Not pumping engine. *Eugene*. *Ore.* *C. F.* Croner. *il* *Munic* *Eng* 44:149-50 F '13
- Stationary chemical engine. *il* *Sci* *Am* 109:169 Ag 30 '13

Fire engines, Motor

- New type of centrifugal fire pump. plans Automobile 28:506-7 F 20 '13
- Working range of centrifugal and Pittler fire pumps. Automobile 28:351-2 Ja 20 '13
- See also* Fire apparatus, Motor

Fire extinction

- Extinguishing fires in oils and volatile liquids. *E. A.* Barrier. *Am* *Soc* *M* *E* *J* 35:1609-16 N '13; *Same* *cond.* *Ind* *Eng* 13:514-6 D '13
- Extinguishing fires with sawdust. *Eng* & *Min* *J* 95:1119-50 Je 7 '13
- Extinguishing of fires in lacquer with sawdust. *E. A.* Barrier. *Eng* N 69:217-8 Ja 30 '13; *Same*. *Metal* *Ind* *n* *s* 11:119-21 Mr '13
- Fire extinguishing and fumigation by the Harker process. *il* *diag* *Int* *Marine* *Eng* 18:320-1 Ji '13
- Flue gas for fire fighting on shipboard. *Eng* N 70:1235 D 18 '13
- Foam fire extinguishers. *H.* Williams. *diag* *Eng* *M* 45:263-5 My '13

Fire extinction—Continued.

Sawdust as a fire extinguisher. *Ind Eng* 13: 154 Ap '13

See also Fire apparatus; Fire departments; Fire engines; Fire protection; Sprinklers

Fire-flies. See Fireflies**Fire pots**

New method of molding cast iron fire pots. *Il Foundry* 41:295-6 My '13

Fire prevention. See Fire protection**Fire proof buildings.** See Fireproof construction**Fire protection**

Allowable heights and areas for factory buildings. *Eng Rec* 67:611 My 31 '13

Allowable heights and areas for factory buildings. I. H. Woodson. *Am Soc M E J* 35: 561-9 Je '13; Same cond. *Iron Age* 91:13-9 Je 5 '13; Same cond. *Eng M* 15:733-4 Ag '13

American electric railway engineering association: report of committee on insurance. *Elec Ry J* 42:893-4 O 16 '13

Automatic sprinkler protection for industrial plants. F. P. Walther. *Il Eng M* 44:79-90 O '12

Auxiliary water supply for the fire protection of San Francisco. A. J. Cleary. *plans Eng Rec* 68:107-10 Jl 26 '13

Debarment of city conflagrations. A. Blauvelt. *Am Soc M E J* 35:947-60 Je '13

Discussion of papers presented at the spring meeting of the Am. Soc. M. E., Baltimore, 1913. *Am Soc M E J* 35:1267-75 Ag '13

Electrical fire protection. *Il Sci Am* 109:215 S 13 '13

Elevated tanks for fire-protective service. B. Blackburn. *Il Eng M* 44:385-92 D '12

Fire convention at New York. *Sci Am* 109: 171 Ag 30 '13

Fire-fighting appliances for industrial plants. F. P. Walther. *Il Eng M* 44:233-41 N '12

Fire hazard and fire prevention in foundries. *Foundry* 41:51-3 F '13

Fire hazard in turbo-generators. G. S. Lawler. *Am Soc M E J* 35:1073-7 Jl '13; Same cond. *Power* 38:890 D 23 '13

Fire prevention and fire insurance. J. Johnson. *Am Ind* 13:21 Je '13

Fire prevention in metalliferous mines. G. J. Young. *Eng M* 44:604-6 Ja '13

Fire prevention legislation. P. Evans. *Am Ind* 11:22-3 N '13

Fire protection at Lodge & Shipley plant, Cincinnati. H. M. Wood. *Il Iron Age* 91: 1165-8 My 8 '13

Fire protection by automatic sprinklers. S. G. Koon. *Sci Am* 109:259 O 4 '13

Fire protection for car storage yards. A. L. Kempster. *Il Elec Ry J* 42:1149-1 N 29 '13

Fire protection for factory workers. *Il diags Ind Eng* 13:411-7 O '13

Fire protection of mines. G. E. Lyman. *Colliery* 33:624-7 Je '13

Fire protection of the country house. E. O. Torbohm. *Arch & Bldg* 45:270-4 Je '13

Fire streams from small hose and nozzles. V. R. Fleming. *Eng Rec* 67:521-3 My 10 '13

Fireproof japanning tank. A. P. Broadhead. *diag Mach* 19:547-8 Mr '13

Improved car yard fire protection at Cleveland. *Il Elec Ry J* 42:1233 D 13 '13

Let the public be informed on fire protection. D. K. Boyd. *Arch & Bldg* 45:206-7, 309-10 My, Jl '13

Life hazard in crowded buildings due to inadequate exits. H. F. J. Porter. *plans Am Soc M E J* 35:749-63 My '13; Same. *Sci Am S* 76:2-3 Jl 5 '13; Same. *Eng N* 70: 228-30 Jl 31 '13

Menace of the match. F. H. Wentworth. *Am Ind* 13:19 Ap '13

Methods of fire prevention. *Sci Am S* 75:167 Mr 15 '13

Municipal watch tower in Indianapolis. *Munic Eng* 44:116 F '13

Order of the Board of railway commissioners for Canada, describing regulations to be adopted by railway companies for the prevention of fires. *Ry Age* 54:711-3 Mr 21 '13

Pneumatic tank for sprinkler systems. *Il Dom Eng* 62:246 Mr 1 '13

Protection of main belt drives with fire retardant partitions. C. H. Smith. *Il diags Am Soc M E J* 35:737-48 My '13; Same. *Ind Eng* 13:243-6 Je '13

Railway fire protection association formed at Chicago, Oct., 1913. *Ry Age* 55:795-8 O 17 '13

Regulation for fire protection in a small city. *Munic Eng* 44:519-21 Je '13

Safety rules—fire prevention. *Eng & Min J* 96:451 S 6 '13

17th annual convention of the National fire protection assn., N. Y., May, 1913. *Eng N* 69:1091-3 My 22 '13

Smoke-proof buildings. *Sci Am* 109:222 S 20 '13

Tests of a fire resisting paint. *Il Ry Age* 55: 23-4 Ag 15 '13

See also Fire apparatus; Fire engines; Fire extinction; Fire service; Fire walls; Fireproof construction; Hydrants; Sprinklers; Water supply

Fire protection association, National. See National fire protection association**Fire pumps.** See Pumping machinery**Fire service**

Baltimore high-pressure fire service. J. B. Scott. *Il diags Am Soc M E J* 35:371-419 Mr '13

Charges for public water service to private fire protection systems in Milwaukee. W. E. Miller. *Eng N* 70:1168-9 D 11 '13

Debarment of city conflagrations. A. Blauvelt. *Am Soc M E J* 35:947-60 Je '13

National standard hose couplings and hydrant fittings for public fire service. F. M. Griswold. *Am Soc M E J* 35:421-34 Mr '13

Private fire-protection service charges. *Eng Rec* 68:53 Jl 12 '13

Water-works charges for private fire protection. L. Metcalf. *Eng N* 70:1236-7 D 18 '13

See also Fire apparatus; Fire departments

Fire walls

Fire walls in institutions. *Arch & Bldg* 45:474-5 N '13

Firearms

Inspection gages for Remington gun parts. E. A. Suverkrop. *Il Am Mach* 38:763-8 My 8 '13

See also Artillery; Guns; Projectiles; Rifles; Shooting

Sights

Remington negative angle sighting system. *Il Mach* 19:603-6 Ap '13

Fireboxes, Locomotive. See Locomotive fireboxes**Firedamp**

Gases met with in coal mines. *Colliery* 33: 445-7 Mr '13

Testing for firedamp with wire loop. H. Briggs. *Colliery* 33:439-41 Mr '13

See also Mine accidents; Mine explosions; Mine fires; Mine ventilation

Fireflies

Intrinsic brilliancy of the glow worm. H. E. Ives and C. W. Jordan. *Il Sci Am S* 76:53 Jl 26 '13

Fireless cookers

Electric fireless cooker. *Il Elec W* 62:397 Ag 23 '13

Firemen's arbitration. See Railroads—Employees**Fireproof construction**

Another call for the fireproof stairway. *Sci Am* 109:82 Ag 2 '13

Chemical balance and the fire waste problem. S. G. Koon. *Sci Am* 108:234 Mr 8 '13

Construction of an 8-story shop-building; Fisher building, Detroit. J. N. McMichaels. *Il plans Concrete Cem* 2:57-60 F '13

Efficiency of thin solid partitions. H. B. McMaster. *Il Concrete Cem* 3:233-5 N '13

Fireproof construction—*Continued.*

- Fire, load and water test on floor systems. *il* Eng Rec 68:sup 52 Ag 23 '13
- Fire preventive methods in some new buildings. *il* plans Arch & Bldg 45:381-8 S '13
- Fire protection for factory workers. *il* diags Ind Eng 13:411-7 O '13
- Fireproof construction in mines. Concrete Cem 3:64 Ag '13
- Fireproof construction: testing materials for their power of resisting extreme temperatures. H. Perrine. *il* Sci Am S 75:360-2 Je 7 '13
- Fireproof exits for loft buildings. *il* Eng Rec 67:19 Ja 4 '13
- Flat roofed fireproof house. F: Squires. *il* Arch & Bldg 45:1-7 Ja '13
- Homer City, Pa.—details and heating of fireproof factory building. E. J. Moore. Eng Rec 67:557 My 17 '13
- Life hazard in crowded buildings due to inadequate exits. H. F. J. Porter. plans Am Soc M E J 35:749-63 My '13; Same. S:4 Am S 76:2-3 Jl 5 '13; Same. Eng N 70:228-30 Jl 31 '13
- Methods of fire prevention. Sci Am S 75:167 Mr 15 '13
- Pierce-Arrow building. New York. *il* plan Arch & Bldg 45:126-8 O '13
- Protection of main belt drives with fire-retardant partitions. C. H. Smith. *il* diags Am Soc M E J 35:737-48 My '13; Same. Ind Eng 13:243-6 Je '13
- Review of concrete as a fire-resistant. Concrete Cem 3:161 O '13
- Safeguarding life in factory fires. Eng N 70:224-5 Jl 31 '13
- Two-way reinforced concrete and tile floor. C. V. Wein. *il* Concrete Cem 3:18-20 Jl '13
- Wrapping I-beams. Concrete Cem 2:237 My '13
- See also* Building; Concrete, Reinforced; Concrete construction; Fire protection; Fire walls; Steel construction

Fireproof textiles

- Fireproof clothing: a process for rendering cotton cloth permanently fire-resisting. W: H. Perkin. Eng M 44:761-3 F '13

Fires

- See also* Chimneys; Fire alarms; Fire protection; Forest fires

Fires at sea

- Peril of fire at sea. Sci Am 109:314 O 25 '13
- Perils of the sea. Eng M 46:255-6 N '13

Firing

- CO₂ diagrams from actual practice. A. Belmont. Power 37:409-11 Mr 25 '13
- Firing practice. Ry Age (Mech ed) 87:293-4 Je '13
- Mechanically directed firemen. Eng M 46:sup 10-2 N '13
- Task setting for firemen and maintaining high efficiency in boiler plants. W. N. Polakov. diags Am Soc M E J 35:1729-69 D '13; Same cond., with discussion. Power 38:881-7 D 23 '13
- See also* Combustion; Fuel; Furnaces; Stokers, Mechanical

First aid in illness and injury

- Artificial respiration with a lemon squeezer. A. C. Muller. *il* Sci Am 108:7 Ja 4 '13
- Contests and competitions held by teams of different companies and organizations. W: Z. Price. *il* Colliery 34:297-23 N '13
- First aid in coal mining accidents; suggestions for formation of relief corps and for first aid instruction. C: Graham. Eng M 44:101-3 O '12
- Humanitarian side of war: Red cross sanitary equipment for the field. W. J. Murray. *il* Sci Am S 75:412-3 Je 28 '13
- Schaefer method of resuscitation. *il* Colliery 34:53-4 Ag '13
- See also* Accidents, Industrial; Mine rescue work

Fish culture

- Large fish hatchery for the state of Kansas at Pratt. L. M. Bush. *il* Eng N 69:472-3 Mr 6 '13

Fish hatcheries. *See* Fish culture**Fisheries**

See also Fish culture

Fishes

- Curious exotic fishes. J. Boyer. *il* Sci Am 109:32 Ag 2 '13
- How fish are adapted to depth of water. Sci Am 109:140 Ag 23 '13
- Studies of fish life and water pollution: paper read before the International congress of applied chemistry, Sept., 1912. H. W. Clark and G. O. Adams. Eng N 69:300-2 F 13 '13
- See also* Shellfish

Fishing boats

- Menhaden fishing steamer, Joseph H. Bellows. G: A. Dean, jr. *il* Int Marine Eng 18:100-1 Mr '13

Fishing tackle

- Fishing reel. *il* Sci Am 108:380 Ap 26 '13

Fitchburg, Massachusetts**Bridges**

- Construction of the Fifth street viaduct. *il* Eng Rec 67:4-6 Ja 4 '13
- Fifth street viaduct. *il* plans Eng N 69:443-7 Mr 6 '13

Sanitary affairs

- Sewage treatment works. plans Eng Rec 67:633-5 Je 7 '13
- Sewage treatment works. F. A. Marston. map plans Eng N 69:1176-81 Je 5 '13

Fitting (engineering)

- Record of pressed fits. C. F. MacGill. Am Soc M E J 35:1655-67 N '13

Fixtures. *See* Machine tools—Fixtures**Flagging.** *See* Railroads—Signals**Flames**

- Acetylene-electric flame. C. F. Lorenz. *il* Elec W 61:511-5 Mr 8 '13
- See also* Fire; Gas burners; Gas lighting; Lighting; Oxy-acetylene flame; Photometry

Flanges

- Flanging brass tubing. J. Gallimore. diags Mach 19:630 Ap '13
- How to figure the volume of curved flanges. A. H. Anger. Mach 19:720 My '13
- 1912 U. S. standard for flanged fittings and flanges; with data sheet supplement. Mach 19:765 Je '13
- Repair of large flanges. P. Silke. *il* Power 37:577 Ap 22 '13
- Repairing a leaky flange. W: Kavanagh. *il* Power 37:612-3 Ap 29 '13
- Standard for flanged fittings. Heat & Ven 10:48-9 O '13
- Standard for flanges and flanged fittings. Power 38:527-30 O 14 '13
- Standardization. Iron Tr R 53:1082-3 D 11 '13
- See also* Pipe joints; Pipes; Steam pipes

Flash point

- Dalton's law in the steam plant. G: F. Fenno. Power 37:389 Mr 18 '13
- Dalton's law in the steam plant. L: Grossbaum. Power 37:163-4 F 4 '13

Flashboards

- Diversion dam with high steel flashboards. M. C. Hinderlider. *il* plans Eng N 70:910-3 N 6 '13

Flasks

- Making foundry tools by short-cut methods. J. Horner. *il* Foundry 41:136-40 Ap '13
- See also* Molding machines

Flat-irons. Electric. *See* Electric irons**Flies**

- Cleveland fly campaign. J. Dawson. Sci Am S 75:102-3 F 15 '13
- Practical elimination of the house fly. A. Moyer. *il* Sci Am 109:31 Jl 12 '13

Flies as carriers of contagion

- House fly: how it spreads disease. E. Hesse. Sci Am S 75:214 Ap 5 '13
- Insects that carry disease. C: Dury. Sci Am S 76:178-9 S 20 '13

Flies as carriers of contagion—Continued.

Stable fly as the carrier of infantile paralysis. C. T. Brues. *il Sci Am S* 75:117-8 F 22 '13

Flight

See also Aeronautics

Float valves

Improved float valve. *il Ind Eng* 13:361-2 Ag '13

Floating docks. *See* Docks**Floating islands**

Floating islands. *Eng Rec* 67:72 Ja 18 '13

Floating islands. *Sci Am* 108:9 Ja 4 '13

Flood control

Alternative propositions for control of the Mississippi. W. Parker. *Sci Am* 108:267 Mr 22 '13

Chinese famine and proposed flood prevention. C. D. Jameson. *il map Eng N* 70:588-93 S 25 '13

Columbus flood-protection; recommendations of the consulting hydraulic engineers. *il Eng N* 70:631-3 S 25 '13

Control of the Mississippi. H. R. Flint. *Sci Am* 108:31 Ja 11 '13

Control of the Mississippi floods. J. L. Slusher. *Sci Am S* 75:399-400 Je 21 '13

Control of the Mississippi floods. C. D. Townsend. *map il Sci Am S* 75:279-83 My 3 '13

Control of the Mississippi river. *Sci Am* 108:262 Mr 22 '13

Control reservoirs and the Dayton flood. *Sci Am* 108:350 Ap 19 '13

Controlling Cherry creek floods, Denver. *Eng Rec* 68:81-2 Jl 19 '13

Controlling the Mississippi with small dams. F. A. Day. *Sci Am* 108:579 Je 28 '13

Correspondence concerning flood control. *Sci Am* 108:397 My 3 '13

Effect of reservoirs on Dayton flood. *Eng Rec* 68:146-7 Ag 9 '13

Federal control of river regulation. S. Whinery. *Eng N* 69:863-4 Ap 24 '13

Flood frequency and flood control. R. E. Horton. *Eng Rec* 68:505-6 N 1 '13

Flood-prevention and water-conservation measures in Germany. *il map Eng Rec* 68:72-4 Jl 19 '13

Flood prevention in the east St. Louis district. T. Aubuchon. *Am Ind* 14:15-6 N '13

Flood-prevention investigations in Ohio. *Eng Rec* 68:38-9 Jl 12 '13

Flood-prevention problem. E. T. Perkins. *Eng N* 69:1137-8 My 29 '13

Flood protection for Columbus, Ohio. plans *Eng Rec* 68:343-4 S 27 '13

Flood protection for Dayton, Ohio. *Eng Rec* 68:399-400 O 11 '13

Flood protection for Lima, O.; engineers' recommendations. *Eng N* 70:828 O 23 '13

Flood-protection plans for Ohio cities. J. W. Hill. *Eng Rec* 68:599 N 29 '13

Flood wall at Portsmouth, Ohio. J. I. Hudson. *il Eng Rec* 68:712-3 D 27 '13

Floods and the problems of river regulation. C. W. Baker. *map il Sci Am* 108:398-401 My 3 '13

Knights Landing cut project in the Sacramento valley. *Eng Rec* 67:298-9 Mr 15 '13

Measures for flood prevention and river control. *Eng Rec* 67:505-6 My 3 '13

Mississippi problem. T. D. Long. *Sci Am* 108:559 Je 21 '13

Mississippi river flood-control problem summarized. C. M. Townsend. *Eng N* 70:1121 D 4 '13

Necessity for co-operation in flood control; report of U. S. Geological survey on Miami river work. *Ry & Eng R* 53:937 O 4 '13

Need for scientific river regulation. *Eng N* 69:734-6 Ap 10 '13

Notes on flood in the lower Mississippi. A. L. Dabney. *Eng N* 69:965-6 My 8 '13

Preliminary report of army engineers on the central states floods. *Eng N* 70:725-6 O 9 '13

Preliminary report on Dayton flood protection. *Eng N* 70:775-6 O 16 '13

Problem of flood control. *Eng Rec* 67:366 Ap 5 '13

Problem of flood control. C. M. Townsend. *Eng N* 69:800-3 Ap 17 '13

Problem of flood control and protective works. R. C. Barnett. *Eng Rec* 67:508 My 3 '13

Problem of flood prevention. R. J. Markoe. *Eng Rec* 67: 676 Je 14 '13

Problem of national proportions. *Sci Am* 108:330 Ap 12 '13

Problem of the Mississippi river. *Sci Am* 108:150 F 15 '13

Protection of the Kansas river valley against floods. J. Y. Oleson. *map Eng Rec* 67:631-2 Je 7 '13

Real problem of the Mississippi. R. S. Spears. *Sci Am* 108:155 F 15 '13

Recent great flood; what may be done to prevent such inundations in the future. *il Sci Am* 108:336-7 Ap 12 '13

Relation of the proposed Pittsburgh flood reservoir system to navigation. *Eng Rec* 67:519-20 My 10 '13

Report of Board of army engineers on Ohio flood. *Eng Rec* 68:426-7 O 18 '13

Report on flood protection for Troy, O. maps *Eng N* 70:1292-4 D 25 '13

Reservoir for flood control in Germany. K. C. Grant. *il map plan Eng N* 69:672-4 Ap 3 '13

Shall we retard, divert or confine our flood waters? *Sci Am* 108:466 My 24 '13

Some months after the flood. *Eng Rec* 67:538 My 17 '13

Starting the work of flood protection. *Eng N* 70:771-2 O 16 '13

Suggestions on reservoir control of the Missouri. J. C. Hopper. *Sci Am* 108:559 Je 21 '13

Tile drainage and its relation to floods. C. G. Elliott. *Eng N* 69:877-8 Ap 24 '13

See also Reservoirs; Rivers—Regulation

Floods

Additional reports from the recent floods. *il Elec Ry J* 41:679-83 Ap 12 '13

Albany filtration plant during the flood. *Eng Rec* 67:374 Ap 5 '13

Albany, N. Y. filters flooded. *il Eng Rec* 67:450 Ap 19 '13

Birdseye view of conditions in Ohio flood districts. *il Eng N* 69:793-8 Ap 17 '13

Cause of difficulty in Batavia sewage pumping station. K. B. Mathes and R. L. Fox. *Eng Rec* 67:336 Mr 22 '13; Same. *Munic Eng* 44:331-2 Ap '13

Cleveland—flood damage. R. Hoffmann. *il Eng Rec* 67:449 Ap 19 '13

Columbus—results of recent flood; damages to bridges and levees and plans for improving river channels. J. J. Morgan. *il map Eng Rec* 67:444-5 Ap 19 '13

Cuyahoga river in the flood of Mar. 25-26, 1913. E. B. Thomas. *il map Eng N* 69:922-4 My 1 '13

Damage by floods to electrical properties. *il Elec W* 61:700-10 Ap 5 '13

Damage by floods to railroads in Ohio and Indiana. *il Ry Age* 51:806-8 Ap 4 '13

Damage to structures in Indianapolis flood. D. V. Moore. *il map Eng N* 69:870-5 Ap 24 '13

Dayton after the flood. *il map Eng N* 69:865-7 Ap 24 '13

Dayton flood. *il Eng Rec* 67:376 Ap 5 '13

Dayton flood. H. C. Wight. *Eng N* 69:971 My 8 '13

Effect of flood at Bedford, Ind. *il Elec W* 61:1178 My 31 '13

Effect of recent flood on New York streams. R. E. Horton. *il Eng Rec* 67:339-402 Ap 12 '13

Effect of the flood on the Ohio electric railway. *il Elec Ry J* 41:724-5 Ap 19 '13

Effects of flood on pavements and sewers. G. C. Cummin. *il Eng Rec* 68:357-8 S 27 '13

Effects of the flood in Indiana. C. C. Brossmann. *il Eng Rec* 67:372-4 Ap 5 '13

Flood and rainfall during March and April at Cincinnati. J. W. Ellms. *il Eng Rec* 68:48 Jl 12 '13

Flood at Indianapolis. D. V. Moore. *il map Eng N* 69:803-6 Ap 17 '13

Floods - Continued.

- Flood damage. Eng Rec 68:391 O 11 '13
 Flood damage to railway property. Eng Rec 67:sup 17-8 My 3 '13
 Flood damage to the Pennsylvania lines. il maps Ry & Eng R 53:362-7 S 13 '13
 Flood destruction on the San Pedro railway. H. G. Tyrrell. il map Eng N 70:16-8 J1 3 '13
 Flood devastation at Dayton, Ohio. map Eng Rec 67:403-4 Ap 12 '13
 Flood disasters in Ohio and Indiana. Eng N 69:681-2 Ap 3 '13
 Flood from underground waters at Bellevue, Ohio. Eng N 69:320 My 1 '13
 Flood gagings at Columbus, Ohio, R. H. Simpson. Eng Rec 67:392 My 21 '13
 Flood in the middle West. il Elec Ry J 41: 624-38 Ap 5 '13
 Flood losses in the Ohio valley in March-April, 1913. Eng Rec 68:439-40 O 18 '13
 Flood of January 9, 1913, at Pittsburgh, Pa. K. C. Grant. il Eng N 69:230-3 Ja 30 '13
 Floods and levees at Cairo, Ill. il map plan Eng N 70:104-7 J1 17 '13
 Floods and the problems of river regulation. C. W. Baker. map il Sci Am 108:398-401 My 3 '13
 Floods damage automobile centers: Dayton and Indianapolis bear large loss. il Automobile 28:747-51 Ap 3 '13
 How an industrial plant in Louisville, Ky. was saved from the flood. C. M. Struck. il Eng Rec 67:578-9 My 24 '13
 Iron and steel output cut down by floods. Iron Age 91:861-4 Ap 3 '13
 Is man responsible for floods? Eng N 69:915-6 My 1 '13
 Leading iron centers swept by great floods. il Iron Tr R 52:812-4 Ap 3 '13
 Lessons and opportunities of the recent floods. Jupiter Pluvius. Eng N 69:862 Ap 24 '13
 Miami and Erie canal feeder reservoirs during Ohio floods. il Eng Rec 67:375-6 Ap 5 '13
 Miscellaneous flood notes. il Eng Rec 67: 442-3 Ap 19 '13
 Notes from the Miami valley. il map Eng N 69:924-31 My 1 '13
 Ohio and Indiana recovering from flood. il Dom Eng 63:15-9 Ap 5 '13
 Ohio reservoirs during the March floods. M. Knowles. il Eng Rec 67:439-42 Ap 19 '13
 Ohio valley floods, 1913. il Eng N 69:693-6 Ap 3 '13
 One flood lesson. Munie Eng 44:418 My '13
 Pittsburgh flood of March 27. M. Knowles. il map Eng Rec 67:446-7 Ap 19 '13
 Railway damage and railway reconstruction in the Ohio flood districts. il Eng N 69:867-9 Ap 24 '13
 Rainfall and flood conditions in Ohio, March 23 to 28, 1913. J. W. Smith. il Sci Am S 75:296-7 My 10 '13
 Rapid recovery from results of Ohio flood. Iron Tr R 52:776, 873-5 Ap 3-10 '13
 Recent storms and floods. il Sci Am 108:315 Ap 5 '13
 Recovering from the floods. H. T. Smith. Eng Rec 67:564 My 17 '13
 Rehabilitation from the Dayton flood. K. G. Martin. il Iron Age 91:1112-5 My 8 '13
 Repairing flood damage on the Pittsburgh & Lake Erie. il Eng Rec 67:449-50 Ap 19 '13
 Reports from the flooded districts, March, 1913. il Eng N 69:741-55 Ap 10 '13
 Richmond, Ind. flood notes. Eng Rec 67:450 Ap 19 '13
 Situation in the flooded districts. Iron Age 91:917-9 Ap 10 '13
 Through fire and flood at Dayton. W. W. Smith. il Concrete Cem 3:65-6 Ag '13
 Unprecedented floods in New York state. R. E. Horton. Eng Rec 67:sup 61 Ap 5 '13
 Wabash river flood, March 21-April 2, 1913. R. L. Sackett. il Eng N 69:836-8 Ap 24 '13
See also Flood control; Rivers—Regulation

Floors

- Analytical study of composition floors. H. M. Hooker. diag Concrete Cem 3:285-6 D '13

- Composition flooring: comparison of its most important characteristics with those of eighteen other materials. Eng Rec 68:635-6 D 6 '13
 Composition flooring: its usefulness, qualities and comparative cost. H. M. Hooker. Eng M 46:100-2 O '13
 Creosoted wood blocks for factory and warehouse floors. F. A. Weaver. Eng Rec 68: 185-6 Ag 16 '13
 Creosoted wood blocks for floors. E. A. Sterling. Eng M 44:276-8 N '12
 Dry rot in floors. D. E. Hooker. Eng Rec 68:26-7 J1 5 '13
 Factory floor which will resist wear. il Ind Eng 13:433 O '13
 Fire, load and water test of floor arches. il Sci Am 109:115 Ag 9 '13
 Fire, load and water test of floor systems. il Eng Rec 68:sup 52 Ag 23 '13
 Fire, load and water test upon cinder-concrete, terra-cotta and gypsum floor arches. H. Perrine. il plan Eng N 70:374-5 Ag 21 '13
 Fireproof floor of beveled blocks. F. Squires. il Arch & Bldg 45:167-70 Ap '13
 Freight-house and warehouse floors. Eng Rec 67:356-7 Mr 29 '13
 Freight house floors. Ry Age 51:723 Mr 21 '13
 Further data on the Long Beach pier floor collapse. il Eng N 69:1288 Je 19 '13
 Hollow steel slab floor. il diag Eng N 69: 1144-5 My 29 '13
 Long Beach (Cal.) auditorium disaster. il Eng Rec 67:628-9 Je 7 '13
 Long Beach, Cal.—fatal failure of overloaded wooden floor. Eng N 69:1145 My 29 '13
 Maximum load assumptions for ordinary floors. Eng N 69:1291-2 Je 19 '13
 Reinforcing a vibrating floor. diags Eng Rec 68:250 Ag 30 '13
 Specifications for wood block floors. il Iron Age 91:1006-7 Ap 24 '13
 Tests of three types of floor arches. il Concrete Cem 3:169-70 O '13
 Workshop floors: flooring materials. W. J. May. Sci Am S 76:195 S 27 '13
See also Bridges—Floors; Building; Fireproof construction; Pavements

Floors, Concrete

- Acid-proofing the floors of battery rooms. plan Met & Chem Eng 11:56 Ja '13
 Concrete floor failure in Detroit. E. H. Owen. plan Eng Rec 67:165-6 F 8 '13
 Concrete floor finish and its execution. L. Eid. Concrete Cem 2:230-2 My '13
 Concrete tile and joist construction. diags Concrete Cem 3:21-2 J1 '13
 Concrete top finish in compression. Concrete Cem 2:238-9 My '13
 Design of armored tubular floors. D. Donaldson. Concrete Cem 2:228 My '13
 Field made plaster cores for floor work. F. Squires. il Concrete Cem 2:283-5 Je '13
 How to lay sanitary floors in dairy barns, poultry, sheep and hog houses. il Concrete Cem 3:38-9 J1 '13
 Latest fireproof floor, the pyrobloc and the plastered ceiling. F. Squire. il Arch & Bldg 45:339-46 Ag '13
 Methods in painting concrete surfaces. L. P. Nemzek. Concrete Cem 2:232-3 My '13
 Molding sand cores for floor construction. F. Squires. il Concrete Cem 2:213-8 My '13
 Precast beams and concrete tile in floor construction. D. Donaldson. Concrete Cem 2: 153 Mr '13
 Recent test of a flat slab floor. Eng N 69:123 Ja 16 '13
 Tests and performance of flat slabs. W. S. Thomson. Eng N 69:587 Mr 20 '13
 Tests on concrete tile and joist construction. il diags Concrete Cem 3:82-3 Ag '13
 Tile and concrete floors. E. V. Johnson; E. Godfrey. Concrete Cem 2:26 Ja '13
 Two-way reinforced concrete and tile floor. C. V. Wein. il Concrete Cem 3:18-20 J1 '13
- Flotation process**
 Flotation of minerals: describing wood flotation process and three types of machines. H. E. Wood. plans Eng M 44:612-4 Ja '13

Flotation process—*Continued.*

Flotation plant at Kyloe copper mines, N. L. H. H. Smith. plans Met & Chem Eng 11: 131-6 Mr '13

Flotation tests at Braden copper co.'s mill in Chile. Eng & Min J 95:717 Ap 5 '13

Flotation vs. table concentration for copper ores. Eng & Min J 95:328 F 8 '13

Macquisten tube flotation process. O. B. Hofstrand. Am Inst Min E Bul 73:73-7 Ja '13

Flow of water. See Water flow**Flue dust**

Arsenic trioxide from flue dust. J. O. Elton. Am Inst Min E Bul 80:1497-1509 Ag '13

Briquetting of flue dust in the United States by the Schumacher process. F. A. Vogel and A. M. Tweedy. il Am Inst Min E Bul 84: 2829-34 D '13

Determination of gases in smelter flues; and Notes on the determination of dust losses at Washoe reduction works, Anaconda. E. M. Dunn. il Am Inst Min E Bul 80:2051-92 Ag '13

How blast furnace flue dust can be utilized. E. B. Clark; with discussion by J. W. Dougherty. Iron Age 92:1108-12 N 13 '13; Same. Iron Tr R 53:1050-5 D 11 '13

Proposed method of charging flue dust without sintering. J. W. Dougherty. diag Iron Age 92:1111-2 N 13 '13

Reclamation of flue dust. Eng & Min J 96: 394 Ag 30 '13

Reclamation of flue dust for furnace use. A. E. Flock. Iron Tr R 52:1017-8, 1063-5 My 1-8 '13

See also Blast furnace gas; Blast furnaces; Briquets; Smelting

Flue gas

Determination of gases in smelter flues; and notes on the determination of dust losses at Washoe reduction works, Anaconda. E. M. Dunn. il Am Inst Min E Bul 80:2051-92 Ag '13

Flue gas for fire fighting on shipboard. Eng N 70:1235 D 18 '13

See also Blast furnace gas; Boilers—Testing; Gases—Analysis

Flues

Design of smoke flues. Ind Eng 13:28-9 Ja '13

Great Falls flue system and chimney. C. W. Goodale and J. H. Klepinger. il diags Am Inst Min E Bul 80:1935-2010 Ag '13

Unique temporary flue. C. H. Bromley. plans Power 37:899 Je 24 '13

See also Chimneys

Fluids

Metering and recording the flow of fluids. J. W. Ledoux. il diags Met & Chem Eng 11:403-7 Jl '13

See also Drops; Gases; Hydraulic engineering; Hydraulics; Liquids; Solution (chemistry)

Flumes

Collapse of fourteen-foot flume of Balleville hydro-electric co., O. il Power 37:395-6 Mr 18 '13

Concrete flume that did not fail: landslides fill Congdon ditch, Washington. il Eng Rec 68:571-3 N 22 '13

Details of flume construction. A. W. Stevens. diag Eng & Min J 95:1289 Je 28 '13

High flume trestle at Oakley, Idaho. A. M. Korsmo. il plan Eng Rec 67:377 Ap 5 '13

Light-iron irrigation flume on Pala Indian reservation. il diags Eng Rec 68:153 Ag 9 '13

Lining an irrigation ditch with Hess metallic fluming. E. M. Chandler. il Eng N 70:464-5 S 4 '13

Metal flumes for irrigation canals. F. W. Hanna. il Eng N 70:1077-9 N 27 '13

Metal flumes for irrigation canals. diag Eng N 70:1316-8 D 25 '13

Puntledge river power development; Vancouver, B. C. il plans Eng N 70:793-801 O 23 '13

Rapid repair of a water power flume. il Elec W 61:255 F 1 '13

Reconstruction of an American river flume. il Eng & Min J 95:667-9 Mr 29 '13

Reinforced-concrete chutes on Boise project. F. W. Hanna. il Eng Rec 67:500-1 My 3 '13

Sluicing sand and gravel in steel-lined flumes. il Eng Rec 68:702 D 20 '13

See also Hydro-electric plants; Irrigation canals; Water power

Fluosilicic acid

Conductivity of fluosilicic acid and lead fluosilicate. T. A. Patterson. Met & Chem Eng 11:670-2 D '13

Fluxes. See Solder and soldering**Flying boats.** See Hydroaeroplanes**Flying machines**

Stability in flying machines. A. A. Merrill. Am Soc M E J 35:1465-78 O '13

See also Aeroplanes

Flywheel explosions

Bursting flywheel causes two deaths at Alpha Portland cement co. il Power 37:915-7 Je 24 '13

Cause of flywheel explosions. J. Stewart. Power 38:863 D 16 '13

Fly-wheel explosion at Birmingham, Alabama. il diag Locomotive 29:258-9 O '13

Fly-wheel explosions, 1913. Locomotive 29:280-1 O '13

Flywheels

Factors of safety and insurance. Power 38: 353-4 S 9 '13

Strains in flywheels. J. E. Terman. Power 38: 651-2 N 4 '13

Folding machines

Combination folding machine and brake. il Iron Age 92:716 O 2 '13

Following up the purchase and installation of machinery. A. W. Welch. il Eng M 45: 674-82 Ag '13**Food**

Electricity and diet. Sci Am 108:10 Ja 4 '13

Relation of railroads to the cost of distribution of food products. Ry & Eng R 53: 760-1 Ag 9 '13

Substitutes. O. Becklestein. Sci Am S 75:80 F 1 '13

See also Bread; Cost of living; Eggs; Meat; Meat extracts

Prices

Food prices, Michigan and Butte. Eng & Min J 96:921-2 N 15 '13

Food laws

Federal law supreme over commerce in food and drugs. C. Chapman. Am Ind 13:16-8 Jl '13

Force and energy

Force, work and power. C. A. McAllister. Int Marine Eng 18:18 Ja '13

Harnessing nature: can the free energy of space be utilized? W. Kaempffert. Sci Am 108:308-9 Ap 5 '13

Recommendations concerning the units of force. E. V. Huntington. Eng N 70:400-1 Ag 28 '13

Units of energy; an appeal to simplify engineering calculations by avoiding the use of cumbersome conversion factors. C. Hering. Eng M 44:93-6 O '12

Forced fits. See Fitting (engineering)**Ford, Cornelius**

Cornelius Ford, public printer. S. H. Horgan. por Inland P'tr 51:570 Jl '13

Ford motor company

Eliminating useless trucking from the factory. O. F. Bornholt. Ind Eng 13:506-8 D '13

Plumbing in an automobile factory. W. H. Chapman. il Dom Eng 63:144-5 My 10 '13

Six-story continuous foundry building of the Ford motor company. O. J. Abell. il Iron Age 92:1-7 Jl 3 '13

Fords, Concrete

Construction of concrete fords. F. A. Good. Concrete Cem 3:112-3 S '13

Forecasts

See also Weather forecasts

Foreign exchange

Foreign exchange. C. Djörup. J Account 15: 412-26 Je '13

Foreign visitors in American plants. R. Moldenke. Iron Age 91:384-5 F 6 '13**Foremen**

Bonus and rating for works executives. J. Nelson. Iron Age 91:1159-62 My 15 '13

Enlisting the foreman's co-operation. R. T. Kent. Ind Eng 13:285-8 Jl '13

General foremen's convention: apprenticeship, scheduling and routing work in the shop, repairs to superheaters, driving boxes. Ry Age (Mech ed) 87:406-7, 415-28 Ag '13

Making section foremen from clerks. W. S. Woolner. Ry Age 55:1187-8 D 19 '13

Management of small versus large plants. S. Dean. Iron Age 91:1377 Je 5 '13

Market value of machine-shop foremen. F. P. Terry. Am Mach 38:746 My 1 '13

Organization of floating gang to train foremen. W. H. Cleveland. Ry Age 54:507-8 Mr 14 '13

Scientific selection of foremen. Iron Age 91: 865 Ap 3 '13

Forest fires

Co-operative protection of forests against fire. Eng Rec 67:105-6 Ja 25 '13

Order of the Board of railway commissioners for Canada, describing regulations to be adopted by railway companies for the prevention of fires. Ry Age 54:711-3 Mr 21 '13

Range-finder stations for forest fires. Eng N 69:573-4 Mr 20 '13

Forest products

Forest products of the United States: the economic value of our trees. map Sci Am S 75: 14-6 Ja 4 '13

Transportation of lumber. Ry & Eng R 53: 822-3 Ag 30 '13

See also Gums and resins; Lumber; Rubber; Timber; Turpentine; Wood; Wood pulp

Forest reserves

Government and our national timber: a defense of the present policy. Sci Am S 75: 126-7 F 22 '13

Our national forests; their value, management and needs. Sci Am S 75:90-1 F 8 '13

State versus federal control of the national forests. Sci Am 108:134 F 8 '13

State vs. national control of public forests. Sci Am 109:176 S 6 '13

What the Forest service offers the prospector. L. A. Palmer. Eng & Min J 95:1011-2 My 17 '13

See also Forests and forestry

Forest service**United States**

Forest service and schools. W. E. Humphreys. Am Ind 14:18 O '13

Forest service and the prospector. S. Riley. Eng & Min J 96:175-6 Jl 26 '13

What the Forest service does to the prospector and mine owner. J. C. Kennedy. Eng & Min J 95:1255-7 Je 21 '13

What the Forest service offers the prospector. L. A. Palmer. Eng & Min J 95: 1011-2 My 17 '13

Forests and forestry

Control of the Mississippi floods. C. D. Townsend. Il Sci Am S 75:280-2 My 3 '13

Diminishing timber supply and municipal forests. Eng N 70:469 S 4 '13

Forestry as related to mining. F. D. Rash. Colliery 33:511-2 Ap '13

Proposed reforestation of the Cedar river watershed. Seattle water-supply. Il map Eng N 70:480-3 S 4 '13

Reforestation of Cedar river watershed. Eng Rec 67:731 Je 28 '13

See also Conservation of resources; Forest fires; Forest reserves; Lumbering; Natural resources; Timber; Trees; Wood

Forge tools

Hardening the heads of forge tools. J. Cran. Il diags Mach 20:304 D '13

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Detecting raised checks with ultra-violet rays. Sci Am 198:475 My 24 '13

Protection against bank note raising and forgeries. Il Sci Am 109:247 S 27 '13

Forges

Improvised forge. R. K. Patterson. Il Sci Am 109:148 Ag 23 '13

Forging

Chart for forging machine work. O. V. P. Bulleid. Am Eng 87:30-1 Ja '13

Design of heavy duty forging machinery. Il diag Iron Tr R 53:591-2 O 2 '13

Drop forging; its relation to the bicycle and automobile industries. F. W. Trabold. Sci Am S 75:22-3 Ja 11 '13

Drop-forging practice. Ind Eng 13:273 Je '13

Machine forging. D. T. Hamilton. Il diags Mach 19:581-5, 707-10, 789-94, 883-7; 20:11-5, 91-4 Ap-Jl, S-O '13

National heavy type forging machine for general work. Il diags Iron Age 92:709 O 2 '13; Mach 20:148-50 O '13; Ry Age (Mech ed) 87:566-7 O '13

Specifications for steel for forgings adopted by Assn. of Am. steel manufacturers. Iron Age 91:264-5 Ja 23 '13

See also Blacksmithing; Dies; Ironwork; Welding

Formosa

Campfire industry in Formosa. Sci Am S 76: 288 N 1 '13

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Wireless-telegraph station at Fort Myer, Va. D. H. Tuck and M. B. Hodgson. Il Elec W 61:145-6 Ja 18 '13

Foundation soils

Bearing power of soil under foundations in Chicago. Eng N 69:463-5 Mr 6 '13

Hardpan and other soil tests in Chicago; safe loads. J. N. Jensen. Il plan Eng N 69: 460-3 Mr 6 '13

Foundations

Building an addition to a foundation. W. H. Wakeman. diag Power 38:297 Ag 26 '13

Building foundation constructed by the freezing process. plan Eng N 69:214 Ja 30 '13

Deep foundation pits in quicksand. Il Eng Rec 67:469 Ap 26 '13

Deep open pits for foundation piers. Eng Rec 67:158 F 8 '13

Earth pressure against foundation walls. R. A. Seaton. Il Eng N 70:721-2 O 9 '13

Excavation and substructure plant for the Equitable building. N. Y. Eng Rec 68:247 Ag 30 '13

Failure of the foundation of the new Canadian-Pacific elevator at Transcona. Il Ry Age 55:986-7 N 21 '13

Foundations of the Northwestern mutual life building, Milwaukee, Wis. Il Eng Rec 67:237-8 Mr 1 '13

Guaranty trust company's new building, New York city. E. W. Stern. Il plans Eng N 70: 258-62 Ag 7 '13

How hollow steel piles, compressed air and concrete are employed to make a foundation. Il Sci Am 109:494-5 D 27 '13

Novel construction of concrete foundations. W. G. Kirchoffer. Eng N 69:364 F 20 '13

Proportioning of foundations for columns and walls. Eng N 69:687-8 Ap 3 '13

Proportioning of foundations for columns and walls. E. McCullough. Eng N 69:465-6 Mr 6 '13

Rapid execution of heavy foundation work. Eng Rec 67:606-7 My 31 '13

Reinforced concrete wall footings and column footings. A. N. Talbot. Ill U Eng Exp Sta Bul 67:1-114 '13

Saving a cathedral with a diver; how Winchester was furnished with a new foundation. J. W. Overend. Il Sci Am 108: 428 My 10 '13

Simple form for column footings. S. H. Bunnell. Il Concrete Cem 3:87 Ag '13

Foundations—Continued.

Sinking piers through soft clay for the Continental and commercial national bank, Chicago. *il Eng Rec* 68:470 O 25 '13

Special concrete foundations in the Manila port district. J. W. Graham. *diags Eng N* 70:554-5 S 18 '13

Suspended grillage foundation of 13-story building for Lexington avenue subway, N. Y. *Eng Rec* 68:289 S 6 '13

Underpinning and retaining grillage foundations of Evening post building for Lexington ave. subway. plan *Eng Rec* 68:176-7 Ag 16 '13

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Foundries

Addition to a Hamilton, Ohio, foundry. *il Iron Age* 92:774-5 O 9 '13

Canadian plant for producing steel castings, Hamilton, Ont. *il plan Iron Tr R* 52:157-8 Ja 9 '13; Same. *Foundry* 41:67-8 F '13

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Combination brass, iron and steel foundry; the Delaware & Hudson at Watervliet, N. Y. *il Ry Age* 55:467-9 S 12 '13

Does it sound like a molder's dream? P. Dwyer. *Foundry* 41:19-20 Ja '13

Emerson-Brantingham co., Rockford, Ill.—model plant for making implement castings. *il plans Iron Tr R* 52:1067-73 My 8 '13; Same. *Foundry* 41:175-82 My '13

Fan heating systems for foundries. W. H. Carrier. plans *Heat & Ven* 10:26-31 Ja '13

Few observations by a veteran molder. E. C. Askem. *Foundry* 41:359-60 S '13

Fire hazard and fire prevention in foundries. *Foundry* 41:51-3 F '13

Foundry specializing in motor car castings: aluminum and brass shop of the Willys-Overland co. *il plan Foundry* 41:537-42 D '13

Ground space in foundries. *Iron Age* 91:424 F '13 '13

Heat and ventilation in a large foundry; International harvester co.'s plant, Springfield, O. *il diag Iron Age* 91:415-7 F '13 '13

Improvements at the plant of the Falk co., Milwaukee. *il plans Foundry* 41:325-30 Ag '13; Same. *Iron Tr R* 52:1449-54 Je 26 '13

Increasing the output while rebuilding a shop: Canadian locomotive co., Kingston, Ont. *il plans Foundry* 41:365-9 S '13

Latter-day stove shop; I. A. Sheppard & co.'s plant, Philadelphia. E. C. Kreutzberg. *il plan Foundry* 41:423-33 O '13

Making of soil pipe as a plumber saw it. *il Dom Eng* 64:34-6 J1 12 '13

Model automobile foundry: Willys-Overland co., Toledo, O. *il plan Metal Ind n s* 11:475-6 N '13

Modern aluminum and brass foundry: United foundry and machine co.'s works, Bridgeport, Conn. *il plan Iron Age* 92:784-6 O 9 '13

New foundry of the Canadian locomotive co. C. A. Tupper. *il plans Iron Tr R* 53:503-7 S 18 '13

New stove foundry at Chicago; plant of Cribben & Sexton co. *il Iron Age* 91:74-6 Ja 2 '13

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Accidents

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Prevention of accidents in the foundry. A. E. Outerbridge, Jr. *il Iron Age* 92:772-4 O 9 '13

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Electric power in foundry operations. H. F. Stratton. *il Iron Tr R* 53:917-24, 941 N 20 '13; Same. *Foundry* 41:407-15 O '13

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Foundry notable for transporting devices; J. I. Case threshing machine co. *il plan Iron Age* 92:769-71 O 9 '13

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Exhibits of foundry equipment and supplies. *Iron Tr R* 53:657-62 O 9 '13

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Foundrymen's conventions in Chicago: meetings and combined exhibition of equipment for foundries and machine shops. *Iron Age* 92:787-94 O 9 '13

Great foundry equipment exhibition at Chicago. *il Foundry* 41:489-97 N '13

Foundry accounting

Easily-applied, common sense cost system: the method of distributing direct and indirect foundry costs. O. O. Brace. *il Foundry* 41:43-6, 97-100, 152-7, 207-8 F-My '13

Economical foundry cost-keeping methods. E. W. Riker. *Foundry* 41:283-5 J1 '13

System for keeping costs in a foundry. E. A. Boyce. *Iron Age* 91:601-5 Mr 6 '13

Uniform cost methods in the foundry industry. C. E. Knoepfel. *Foundry* 41:272-4 J1 '13

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Combination jar-ramming, roll-over and pattern-drawing machine. *il Foundry* 41:505 N '13

Foundry and machine exhibition at Chicago. *il Iron Tr R* 53:709-14 O 16 '13

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Foundry management

Aids to brass foundry management. *Foundry* 41:162-3 Ap '13

Aids to scientific management in the foundry. W. M. Corse. *Iron Age* 91:688-9 Mr 13 '13; Same. *Metal Ind n s* 11:158-9 Ap '13

Back of the shop. J. F. Deiter. *Metal Ind n s* 11:289 J1 '13

Casting cleaners' wages on the premium basis. A. W. Gregg. *Foundry* 41:183-4 My '13

Cleaning castings by the premium system; the application of the bonus wage plan. A. W. Gregg. *Iron Tr R* 52:571-3 Mr 6 '13

Core oil storage. *il Foundry* 41:212 My '13

Economies of continuous foundry operations: efficiency of conveyor shop for making castings, with data on cost of installation, operation, repairs, etc. G. K. Hooper. *Foundry* 41:7-9 Ja '13

Eight-hour versus twelve-hour shifts: economies effected through shorter hours. R. A. Bull. *Eng M* 44:599-601 Ja '13

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- Foundry output and convenient arrangement. H. M. Lane, *Iron Age* 92:778-9 O 9 '13
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- Holley carburetor co.'s system in storing patterns, *diags Automobile* 29:370-1 Ag 28 '13
- How economies can be affected in core shops. C. F. Flamerfelt, *Foundry* 41:532-4 D '13
- How I estimate the selling price of castings. R. O. Shive, *Foundry* 41:235-6 Je '13
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- Safety rules for the foundry. *il Foundry* 41:36-7 Ja '13
- Scientific management in the foundry. *Iron Age* 92:913-4 O 23 '13
- Specialization in the foundry. W. H. Dean, *Foundry* 41:26 Ja '13
- Success in foundry operation not simple. W. H. Dean, *Iron Age* 92:780-1 O 9 '13
- System for the drafting office, pattern shop and foundry. F. Tislington, *Mach* 19:877-9 Jl '13
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- Vital points in good foundry practice. J. J. Wilson, *Iron Age* 92:1101 N 13 '13
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- See also* Foundry accounting; Foundry practice

Foundry practice

- Annual convention of Am. foundrymen's assn. and Am. institute of metals, Chicago, Oct., 1913. *Met & Chem Eng* 11:608-10 N '13
- Anvil block cast in open sand. L. Luhrsens, *diags Foundry* 41:274-5 Jl '13
- Casting paper machinery cylinders. *il Am Mach* 38:166 Ja 23 '13
- Casting parts of a 6000-hp. gas engine. *il Iron Age* 92:782-3 O 9 '13
- Compressed air as a foundry auxiliary. *il Iron Age* 91:196-9 Ja 16 '13
- Continuous brake shoe plant. plan *Foundry* 41:50 F '13
- Electric power in foundry operations. H. F. Stratton, *il Iron Tr R* 53:217-24, 941 N 29 '13; Same, *Foundry* 41:407-15 O '13
- Enterprise mfg. co., Cornwells, Pa.; foundry with continuous molding units. *il Iron Age* 91:52-61 Ja 2 '13
- Features of American core room practice. *Iron Age* 92:400-2 Ag 21 '13
- Formulas for finding the weights of castings. W. L. Tryon, *Foundry* 41:386a S '13
- Foundry pyrometers. H. W. Gillett, *il Metal Ind n s* 11:24-5, 79-80, 116-7 Ja-Mr '13
- Foundry practice is increasingly scientific: meetings of Foundrymen's associations at Chicago show progress. *Iron Age* 92:909-14 O 23 '13
- Foundrymen discuss many problems at Chicago. *Iron Tr R* 53:723-8, 755-6 O 23 '13
- French view of American foundries. M. Brasseur, *Iron Age* 92:1136-8 N 13 '13
- Gray iron mouth-piece casting for a retort. *il Foundry* 41:160-1 Ap '13
- Hints for the steel founder; paper read at Am. foundrymen's assn., Buffalo. S. R. Robinson, *Foundry* 41:53-4 F '13
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- How we cast 22 cylinders in one sand mold. G. W. Kelly, *il Foundry* 41:121 Mr '13
- Hydrostatic pressure on molds and cores. R. R. McGowan, *diags Foundry* 41:229-32 Je '13

- Intricate bronze casting for a submarine. *il Foundry* 41:227-8 Je '13
- Jar-rammed guard rail molds. *il Foundry* 41:238-9 Je '13
- Lugs, facings and bosses. F. W. Shaw, *il Sci Am S* 75:111-2 F 15 '13
- Making a large vanadium bronze engine housing. *il Foundry* 41:224-6 Je '13
- Making foundry tools by short-cut methods. J. Horner, *il Foundry* 41:137-41, 199-200 Ap-May '13
- Manufacture of white-metal die castings. *il diag Am Mach* 38:819-22 My 15 '13
- Modern method of manufacturing metal core boxes used on plumbing and steam brass goods. P. W. Blair, *il Metal Ind n s* 11:202-3 My '13
- Molding cylinders by hand and machine. *il Foundry* 41:143-4 Ap '13
- Molding gas engine cylinders for motor cars: methods of Campbell, Wyant & Cannon foundry co., with details of coremaking. *il Foundry* 41:1-6 Ja '13
- Molding large crank cases. *il Foundry* 41:151 Ap '13
- Molding large, iron, generator field frames. *il Foundry* 41:217-9 Je '13
- Notes on cores, core boxes and prints. J. A. Shelly, *Foundry* 41:257-8 Je '13
- Overland company's aluminum foundry. *il plan Automobile* 29:459-61 S 11 '13
- Physical properties of molding sands. A. B. Searle, *Eng M* 44:403-6 O '12
- Practice of the Edgar-Allen American manganese steel co. *il Iron Tr R* 52:1404-11 Je 19 '13; Excerpts, *Ind Eng* 13:492-3 N '13
- Problems of the foundry discussed at Chicago meeting of Am. foundrymen's assn. and the Associated foundry foremen. *Foundry* 41:461-8 N '13
- Satisfactory mixture for a jobbing foundry. W. J. Keep, *Foundry* 41:422 O '13
- Standard turbine cylinder molding practice. C. A. Tupper, *il Foundry* 41:47-50 F '13
- Threaded fittings made with green sand cores. W. J. Carew, jr. *diags Foundry* 41:535-6 D '13
- Use and abuse of slip jackets. W. H. Parry, *Foundry* 41:519-20 D '13
- Use of the oxy-acetylene torch in foundries. H. C. Estep, *il Foundry* 41:443-50 O '13
- Van Wagner mfg. co.'s die-casting practice. Syracuse, N. Y. C. L. Lucas, *il diags Mach* 19:327-31, 425-8 Ja-F '13
- Waterbury, Conn.—metal casting shop. G. Thompson, *il plans Metal Ind n s* 11:155-7, 206-9 Ap-May '13
- See also* Aluminum; Brass founding; Cast iron; Copper founding; Cupola furnaces; Fire clay; Iron founding; Iron metallurgy; Manganese steel; Pattern making; Pickling (metals); Pig iron; Steel castings; Steel molds

Foundry records

- How one iron foundry records its operations: system installed by the Rutenber motor co. C. S. Taylor, *Foundry* 41:527-31 D '13

Foundry supplies. *See* Foundries—Equipment and supplies**Foundrymen**

- Open-shop policy, workmen's compensation etc. discussed by National founders' association. *Iron Tr R* 53:989-97 N 27 '13

Foundrymen's association, American. *See* American foundrymen's association**Fountains**

- Novel electric fountain. *il Am Ind* 14:26-7 N '13

Fountains, Drinking. *See* Drinking fountains**Fox farming**

- Fortunes in foxes. *Sci Am* 108:172 F 22 '13

France**Defenses**

- Comparison of French and German strength in dirigible airships. *il Sci Am* 109:126 Ag 16 '13

Navy

- Recent warships for the French admiralty. *il plans Int Marine Eng* 18:93-7 Mr '13

Franchises

Franchise values. W. M. Wherry, jr. Elec Ry J 42:781-2 O 15 '13

Goodwill, patents, trade-marks, copyrights and franchises. P. J. Esquerré. J Account 15:31-4 Ja '13

Franchises, Municipal. See **Municipal franchises**

Franklin institute, Philadelphia

Franklin institute treasures. H. D. Jones. il Sci Am 108:473 My 24 '13

Freeport, Texas

New port and railroad terminal on the Gulf. A. W. Davis. il Ry & Eng R 53:499-501 My 31 '13

Freezing points

Best anti-freeze solution. Automobile 29:1022 N 27 '13

Freezing process. See **Foundations**

Freight

Illinois traction system's St. Louis express and freight traffic methods. il map plan Elec Ry J 41:282-7 F 15 '13

Need of better boxes for freight. Ry Age 55:23-4 JI 4 '13

Relation of interurban freight service to the high cost of living. E. C. Spring. Elec Ry J 41:171 Ja 25 '13

See also Carriers; Demurrage; Electric railroads — Freight; Railroads — Freight; Shipment of goods; Transportation

Freight, Perishable

Pre-cooling perishable goods at loading stations. B. W. Redfearn. Ry Age 55:568-9 S 26 '13

Transportation of fruit and vegetables. E. D. Levy. Ry Age 54:239-42 F 7 '13

See also Refrigerator cars

Freight car service

Big Four's letter on car efficiency. Ry & Eng R 53:996 O 25 '13

Capacity and movement of freight cars. Iron Age 92:1225-6 N 27 '13

Car balance and performance. Ry Age 55:474-5 S 12 '13

Car balance and performance and car locations for Oct., 1912. Ry & Eng R 53:128 F 8 '13

Car efficiency. J. R. Cavanagh. Ry & Eng R 53:342-3 Ap 12 '13

Car pooling. Ry Age 55:963 N 21 '13

Car shortages. E. P. Ripley. Ry Age 55:406 S 5 '13

Car surpluses and shortages: car location bulletins of Am. Ry. Assn. Ry & Eng R 53:36, 190, 238-9, 398, 347, 394, 444, 490, 632, 917, 994-5, 1112 Ja 11, Mr 1, 15, 29, Ap 12, 26, My 10, 24, Je 28, S 27, O 25, N 29 '13; Published also in Ry Age

Causes and cure of deficient use of freight cars. L. F. Loree. Eng M 45:18-23 Ap '13

Comparative summary of freight cars in service. Ry Age 55:458-60 S 12 '13

Congestion on the Prussian state railways in 1912. G. Allix. Ry Age 55:1232-3 D 26 '13

Control and distribution of refrigerator cars in interstate commerce. H. M. Wigney. Ry & Eng R 53:1105 N 29 '13

Demurrage as a remedy for car shortages. J. O. Klapp. Ry Age 55:1225-7 D 26 '13

Freight car efficiency. Ry & Eng R 53:35-6 Ja 11 '13

Freight car tactics or regulations. A. Hale. Ry Age 54:145-7 Ja 21 '13

Getting more movement for freight cars. E. H. De Groot jr.; F. M. Lucore. Ry Age 55:403-4 S 5 '13

Getting more movement for freight cars. A. Hale. Ry Age 55:175-6 Ag 1 '13

Improving the railway freight service. Eng N 69:319-20 F 13 '13

Increasing freight car efficiency. B. A. Worthington. Ry Age 55:371-2 Ag 29 '13

Increasing the service of freight cars. J. M. Daly. Eng N 69:315 F 13 '13

Plan for the joint purchase of freight cars. Ry Age 55:957 N 21 '13

Present location of American freight cars. Automobile 28:523 F 20 '13

Reducing number of cars in repair shops. Ry Age 55:43 JI 11 '13

Report of Car service commission. Ry Age 54:290-1 F 14 '13

Resolutions on grain cars and grain car service. il Ry & Eng R 53:1166-7 D 20 '13

Terminal service. W. M. Prall. Ry & Eng R 53:574-7 Je 14 '13

Transportation problem. R. W. Ropiequet. Colliery 33:609-12 Je '13

Uncle Sam's freight cars. J. G. Hill. Ry Age 55:414 S 5 '13

See also Refrigerator cars

Carload

Car loading efficiency. Ry & Eng R 53:129-30 F 8 '13

Economy of capacity loading from the shipper's point of view. G. Wilson. Ry Age 55:830 O 31 '13

Heavier loading of cars. Ry & Eng R 53:996-8, 1024-6 O 25-N 1 '13

Heavy loading of cars. J. F. Townsend. Ry & Eng R 53:959-60 O 11 '13

Increasing freight car performance. C. C. Riley. Ry Age 55:555-7 S 26 '13

Increasing the loading of cars. Ry Age 55:810 O 31 '13

Freight cars

Am. Soc. M. E. and freight car design. Ry & Eng R 53:368-9 Ap 19 '13

Box car construction, as viewed by a repairer. H. S. Fentress. Am Eng 87:255-6 My '13

Box car design. Ry Age 54:47 Ja 10 '13

Box car for grain and coal traffic. il Ry Age 55:57-8 JI 11 '13; Same. Ry Age (Mech ed) 87:386-8 JI '13

Car roof problem. il Ry & Eng R 53:505, 565 My 31, Je 14 '13

Convertible stock and box car. il diags Ry Age 55:1126-8 D 12 '13

Fifty-ton low side gondola with steel under frame for the Jersey Central. il plans Am Eng 87:207-9 Ap '13

Fifty-ton steel hopper car, Central railroad of N. J. il diag Ry Age (Mech ed) 87:439-41 Ag '13

47th annual convention of the Master car builders' association, Atlantic City, June, 1913. Ry & Eng R 53:627-8, 632-4 Je 28 '13

47th annual convention of the Master car builders' assn., Atlantic City, June, 1913. Eng N 69:1341-4 Je 26 '13

Freight car design. C. L. Bundy. Am Eng 87:268 My '13

Freight car designing. E. G. Chenoweth. Ry Age (Mech ed) 87:505-6 S '13

Freight car standards. Ry & Eng R 53:535 Je 7 '13

Freight car troubles. C. L. Alden. Am Eng 87:266-7 My '13

Freight car troubles: poor draft gear and attachments. J. C. Fritts. il Ry Age 55:499-501 S 19 '13; Same. Ry Age (Mech ed) 87:551-4 O '13

Freight car truck experiments. Am Eng 87:42-4 Ja '13; Same. Ry Age 54:67-8 Ja 10 '13; Ry & Eng R 53:184-5 Mr 1 '13

Freight cars damaged by improper loading. il Ry Age (Mech ed) 87:649-50 D '13

Freight cars for the Grand Trunk railway system. il Ry & Eng R 53:1104-5 N 29 '13

Government owned freight cars. Ry & Eng R 53:870-4 S 13 '13

Grain car inspection. R. W. Schulze. Am Eng 87:33-4 Ja '13

Grand Trunk hopper bottom box car. il Ry Age (Mech ed) 87:323-4 Je '13

Hopper bottom grain car, Grand Trunk Ry. il Ry & Eng R 53:317 Ap 5 '13

Hopper-bottom steel-frame box cars for grain; Canadian Pacific Ry. il Eng N 70:806-7 O 23 '13

Improved methods of freight car construction. R. W. Schulze. diags Ry Age (Mech ed) 87:437-8 Ag '13

Inside sheathed steel frame box cars. R. W. Burnett. il Ry Age 55:1075-7 D 5 '13

Interpretation of the rules of interchange. Ry Age 55:457-8 S 12 '13

Freight cars—Continued.

Link side bearing truck, diags Ry Age (Mech ed) 87:373-4 D '13; Same, Ry Age 55:1167-9 D 19 '13

Making stock cars from scrapped box cars, W. Queenan, Ry Age (Mech ed) 87:379 JI '13

Narrow gage equipment for the East broad top, il Ry Age 55:1666-7 Je 27 '13

New devices for the car department, il diags Ry Age 55:1167-9 D 19 '13

Ninety-ton high side gondola car: developed on the Norfolk & Western and equipped with specially designed six-wheel equalized trucks, il plans Am Eng 87:335-10 Ja '13; Same, Ry Age 51:16-9 Ja 3 '13

Ninety-tons capacity gondola, Norfolk & Western railway, il plans Ry & Eng R 53:3-6 Ja 4 '13

100-ton coal car: Norfolk & Western Ry, il plan Eng N 69:116-7 Ja 16 '13

Problem of box car design, Ry Age 55:1123-5 D 12 '13

Rumsey freight car door, diags Am Eng 87:216 Ap '13; Ry & Eng R 53:52 Je 11 '13

Seventy-ton hopper car, for Birmingham Southern, il Ry Age (Mech ed) 87:503-1 S '13

Seventy-ton quadruple hopper cars for the Birmingham Southern R. R. il Ry & Eng R 53:563 Je 14 '13

Special 75-ton flat car, R. S. Mounce, il diags Ry Age (Mech ed) 87:388-90 JI '13

Steel frame box cars, C. A. Seely, Ry & Eng R 53:1126 D 6 '13

Steel frame box cars for the Frisco, il diags Ry Age 55:609-14 O 3 '13; Same, Ry Age (Mech ed) 87:555-61 O '13

Steel framing for box cars, R. W. Barnett, il Ry Age (Mech ed) 87:551-5 D '13

Steel underframe box cars, G. W. Rink, Ry Age (Mech ed) 87:557-60 D '13; Ry & Eng R 53:1157-9 D 13 '13; Same cond. Ry Age 55:1081-2 D 5 '13

Steel underframe car for the Reading, il plans Am Eng 87:210-2 Ap '13

Steel underframe construction, American car & foundry co. il Ry & Eng R 53:572 Je 14 '13

Steel underframes for cars and steel box-cars, Eng N 70:1202-3 D 11 '13

Steel upper frame box cars, R. W. Barnett, il diags Ry & Eng R 53:1122-5 D 6 '13

Strong box car end, il plans Am Eng 87:40-2 Ja '13; Ry Age 51:63-4 Ja 10 '13

Tank car design, H. E. Parsons, diags Ry Age (Mech ed) 87:445-6 Ag '13

Testing draft gears prior to purchasing, B. V. Crandall, Ry & Eng R 53:397-9 Ap 26 '13

Tests of alcohol heater car, Ry Age 55:53-4 JI 11 '13; Same, Ry Age (Mech ed) 87:441-2 Ag '13

Vital factors in car economy; adapted from paper by C. A. Lindstrom, Ry & Eng R 53:204-5 Mr 8 '13

See also Car cleaning; Car painting; Draft gears; Refrigerator cars

Cost of maintenance

Cost of freight car maintenance per car: capacity and cost of cars, Ry & Eng R 53:99 F 1 '13

Cost of freight car maintenance per ton mile, Ry & Eng R 53:388-9, 412-3, 436-7, 461, 598-9, 628, 651 Ap 26-Mr 17, Je 21-JI 5 '13

Freight car maintenance costs and service, Ry & Eng R 53:344 Ap 12 '13

Growing cost of freight car repairs, F. F. Gaines, Am Eng 87:205-6 Ap '13

Maintenance cost and duty performed by freight cars, J. C. Fritts, Ry Age 54:833-4 Ap 11 '13

Repairs

Increased efficiency in freight car repairs, Ry & Eng R 53:392 Ap 26 '13

Instruction of car men on interchange rules, R. W. Schulze, Am Eng 87:154 Mr '13

See also Freight cars—Cost of maintenance

Weighing

Hearing on car weighing by Interstate commerce commission, Ry & Eng R 53:209 Mr 8 '13

Report on track scales by the Interstate commerce commission, Ry & Eng R 53:757-9, 763-4, 807-10 Ag 9, 23 '13

Weighing half a million freight cars, il Sci Am 109:180 N 22 '13

Freight classification

Uniform freight classification, Ry & Eng R 53:1112-3 N 29 '13

Western classification no. 51 rejected by Interstate commerce commission, Ry & Eng R 53:31-2 Ja 11 '13

Freight handling

Brown hoisting machines at Baltic street, Brooklyn, il Ry Age 54:1001-2 My 2 '13

Comparison of electric and hand trucks in freight house service, R. C. Weller, Ry Age 55:153 D 19 '13

Development in the handling of freight by mechanical means, Ry Age 54:704-5 Mr 21 '13

Electric trucks in freight house service, il Ry Age 55:236-8 Ag 8 '13

Electrical equipment and concrete construction at Auckland harbor, W. Wilson, il Eng M 46:217-26 N '13

Freight burtoning at marine terminals, H. M. Harding, il Int Marine Eng 18:489-92 N '13

Freight handling equipment at Kansas City municipal wharf, il Int Marine Eng 18:487-8 N '13

Freight-handling equipment of New York dock company, il plan Eng Rec 67:432-3 Ap 19 '13; Same, Ry & Eng R 53:365-7 Ap 19 '13; Same, Int Marine Eng 18:204-6 My '13

Handling west-bound freight on the North river railroad piers, New York city, W. J. Barney, plan Eng N 70:309 Ag 14 '13

How to increase marine terminal capacity, H. M. Harding, il Int Marine Eng 18:335-8 Ag '13

Installation of freight-handling machinery for increasing dock capacity, il Eng N 69:914 My 1 '13

Locating the friction in our transportation system, R. H. Rogers, il Sci Am S 75:244 Ap 19 '13; Same cond. Ry & Eng R 53:212 Mr 8 '13

Mechanical transference at freight terminals, H. M. Harding, Ry Age 54:51-3 Ja 10 '13

Modern industrial buildings of Bush terminal co., So. Brooklyn, New York, il Ind Eng 13:193-6 My '13

Motor truck and the freight terminal, R. L. Niles, Sci Am 109:248, 326 S 27, O 25 '13

Otis inclined freight elevator, il Ry Age 54:849-50 Ap 11 '13

Port facilities for ships and cargos in the United States, W. T. Donnelly, Int Marine Eng 18:107-9 Mr '13; Same cond., with discussion, Am Soc M E J 35:997-1009 Je '13

Power truck emancipates the baggage man, J. B. Baker, Sci Am 108:340 Ap 12 '13

Structural and mechanical features of a railroad freight pier, Hoboken, N. J., il plan Eng Rec 67:586-8 My 24 '13

Stud-baker corporation loading platform, for shipping automobiles, il Ry Age 54:1038 My 9 '13

Trucking at railroad terminals and steamship piers, Sci Am 108:294 Mr 29 '13

Westinghouse telpherage system for handling freight at steamship terminals, il Int Marine Eng 18:29-30 Ja '13

See also Freight terminals; Telpherage

Freight-houses

Freight-house and warehouse floors, Eng Rec 67:356-7 Mr 29 '13

Freight house floors, Ry Age 54:723 Mr 21 '13

Freight house for C. M. & St. P. at Great Falls, Mont., il plans Ry & Eng R 53:1055-6 N 15 '13

Illinois traction system's freight house at Springfield, Ill., il plans Elec Ry J 41:930-1 My 24 '13

Freight rates

Freight rates by water and by rail. J. L. Payne. Ry Age 54:871-4 Ap 18 '13
See also Railroads—Rates

Freight ships

Electrically-driven cargo boat Tynemount. C. Van Langendonck. *il* Int Marine Eng 18: 529-2 D '13
 Great Lakes steamers for coastwise service. *il* plans Int Marine Eng 18:47-52 F '13
 Lumber schooner John A. Hooper. *il* plan Int Marine Eng 18:72 F '13
 Motor-driven freight ship, Bromberg. Int Marine Eng 18:146 Ap '13
 Old Dominion line's freight steamer Tyler. *il* plans Int Marine Eng 18:369-74 S '13
 Performance of an oil-engine ocean vessel: Christian X. Eng N 70:347 Ag 21 '13
 Performance of the lumber-carrying steamer Adeline Smith. *il* Int Marine Eng 18:375-7 S '13
 Single screw molasses tank steamer Amolco. plans Int Marine Eng 18:378-82 S '13

Freight solicitors

Freight solicitor's art. W. B. Townsend. Ry Age 55:1159-60 D 19 '13

Freight terminals

Congested freight terminals. Eng Rec 68:451 O 25 '13
 Freight pier at Communipaw. N. J. *il* plans Ry Age 54:1023-5 My 9 '13
 Freight terminal needs. Eng Rec 67:130 F 1 '13
 Freight terminal service. W. M. Prall. Ry & Eng R 53:96-8 F 1 '13
 Harlem river freight terminal, New York city, to be operated by electricity. Eng N 69: 1335-6 Je 12 '13
 Motor truck and the freight terminal. R. L. Niles. Sci Am 109:218, 326 S 27, O 25 '13
 Motor truck extension of railroads. Sci Am 109:238 S 27 '13
 New cotton belt freight terminal at St. Louis. W. Haydock. *il* plan Ry & Eng R 53:73-5 Ja 25 '13; Same. Ry Age 55:218-20 Ag 8 '13
 New electric freight station at Boston. *il* plan Elec Ry J 42:260-1 Ag 16 '13
 New York's freight terminal problem. map Ry Age 54:813-5 Ap 11 '13
 St. Louis railway freight terminal. *il* plans Eng N 69:664-7 Ap 3 '13
 Soo line freight terminal in Chicago. *il* plan Eng N 70:378-83 Ag 21 '13; Same cond. Eng Rec 68:188-91 Ag 16 '13
 Southern railway freight station and office building at Atlanta, Ga. *il* plan Ry Age 51: 839-10 Ap 11 '13
 Study for unification of all freight terminals at Buffalo. diags Eng Rec 68:414-6, 431-2 O 11-18 '13
 Study for unifying the freight terminal of Buffalo. G. H. Kimball. map plan Ry & Eng R 53:1168-72 D 20 '13
 Terminal service. W. M. Prall. Ry & Eng R 53:574-7 Je 14 '13

See also Electric railroads—Terminals; Freight handling; Freight houses; Railroads—Terminals

Frequency changers

Operation of frequency changers. N. E. Funk. Am Inst E E Pro 32:1578-96 Ji '13

Frescoes

Ancient art revived; an account of sgraffito. M. F. Friederang. *il* Arch Rec 33:22-33 Ja '13

Frick, H. C., coke co., Connellsville, Pa.

Rational mine sociology; amusement hall of the H. C. Frick coke co. *il* Mines & Min 33:393-4 Ja '13

Friction

Electrification of benzene by friction. Sci Am S 75:199 Mr 29 '13

See also Bearings (machinery); Lubrication and lubricants

Friedmann, Friedrich Franz

Friedmann's new tuberculosis remedy. H. J. Archard. Sci Am 108:210 Mr 1 '13

Misapprehension as to the novelty of the Friedmann treatment. Sci Am S 75:183 Mr 22 '13

Fritz, John, 1822-1913

Biographical notice of. R. W. Raymond. *por* Am Inst Min E Bul 78:85-97 Jo '13
 John Fritz, ironmaster. *por* Eng Rec 67: sup 40 F 22 '13
 Passing of a great ironmaster. Sci Am 108: 192 Mr 1 '13
 Sketch. Am Soc M E J 35:22-30 Mr '13
 Sketch. *por* Eng & Min J 95:103-1 F 22 '13
 Sketch. *por* Eng N 69:382-5 F 20 '13
 Sketch and appreciation. *por* Iron Tr R 52: 480-3 F 20 '13

Frost

Frost damage to Montreal filters. F. E. Field. *il* diags Eng Rec 68:566-9 N 22 '13

Frost crystals

Frost crystals formed underground. C. B. Neiswender. *il* Eng & Min J 96:492 S 13 '13

Froude (tugboat)

Experimental tugboats: the Fulton and the Froude. *il* Sci Am S 75:12-3 Ja 4 '13
 Experiments on the Fulton and the Froude. C. H. Peabody. plans Int Marine Eng 18:7-13 Ja '13

Fruit, Transportation of

Transportation of fruit and vegetables. E. D. Levy. Ry Age 54:239-42 F 7 '13

Fuel

After coal—what? Power 37:268 F 25 '13
 Choice of fuel. Power 38:237 Ag 12 '13
 Estimating heat value of fuel. (Engineers' study course) Power 37:835-7 Je 10 '13
 Fuel possibilities in steel making. W. Whigham. Iron Age 92:1056-9 N 6 '13; Iron Tr R 53:1097-1101 D 18 '13
 Gas producer and waste fuels. F. Fielden. Power 37:262-4 F 25 '13
 Iron blast furnace and the characteristics of its fuels. L. E. Johnson, jr. Met & Chem Eng 11:687-93 D '13
 Power from waste fuel. Sci Am S 75:91 F 8 '13
 Rubbish as fuel. Power 37:745 My 27 '13
 Sawmill refuse as fuel in gas producers. C. E. Snynn. Eng M 44:96-8 O '12

See also Automobile engines—Fuel; Blast furnace gas; Briquets; Calorimeters and calorimetry; Coal; Coal, Pulverized; Coke; Firing; Fuel testing; Gas and oil engines—Fuel; Gas as fuel; Gasoline; Kerosene; Lignite; Liquid fuel; Locomotives—Fuel; Peat; Petroleum as fuel

Fuel, Pulverized. See Coal, Pulverized**Fuel economizers**

Auxiliary contrivances for reducing gasoline consumption. diags Automobile 29:876-7 N 6 '13
 Economizer explosion at Saylesville. R. I. *il* Power 37:136-8 Ja 28 '13
 Economizer losses due to scale. E. R. Pearce. Power 38:263 Ag 19 '13
 Efficiency and repair costs of fuel economizers. H. G. Brinckerhoff. Power 37:540-1 Ap 15 '13
 Influence exercised by cold air leaks on efficiency of economizers. G. Gherisina. Am Soc M E J 35:899-902 My '13
 Safeguarding economizers: symposium. Power 37:793-4 Je 3 '13
 Why do economizers explode? Power 37: 159 F 4 '13

Fuel economy

Conservation of coal and liquid fuel. Power 38:564-6 O 21 '13
 Credit due to operating department for power utilization and train movement that reduces consumption of fuel per ton mile. Ry & Eng R 53:782-3 Ag 16 '13
 Economic combustion of low-grade or waste fuels. D. M. Myers. diags Eng M 45:76-81, 227-40, 358-71 Ap-Je '13
 Economics in running the boiler fire. W. M. Faber. *il* Iron Age 92:844-5 O 16 '13
 5th annual convention of International railway fuel assn., Chicago, 1913. Ry & Eng R 53:485-7, 507-8 My 24-31 '13

Fuel economy - Continued.

- Fuel economy by the engine crew. M. E. Wells. Ry Age 55:563-1 S 26 '13
 Fuel economy on a trunk line railroad. W. B. Landon. Ry & Eng R 53:51-7 Ja 18 '13
 Fuel economy on the Buffalo. Rochester & Pittsburg. H. C. Woodbridge. diags Ry Age 54:297-8 F 11 '13
 Fuel economy on the Rock Island. W. J. Tolbert. Ry Age 51:103-4 Ja 17 '13
 Fuel-efficiency of the cupola-furnace. J. J. Porter. Am Inst Min E Bul 71:239-48 F '13
 Locomotive fuel economy. R. Collett. diag Ry & Eng R 53:537-10 Je 7 '13; Ry Age 55:874-8 N 7 '13
 Operating department and fuel economy. Ry Age 55:332-4 Ag 22 '13; Ry Age (Mech ed) 87:169-72 S '13
 Reclaiming fuel from chain-grate stokers. E. Brown. Power 38:587 O 21 '13
See also Dry blast process; Fuel economizers

Fuel testing

- Exhaust gases from oils and gas fuels. J. C. Smallwood. Power 38:682-3 N 11 '13
 Fuel-efficiency of the cupola and temperatures. A. W. Belden. il diags U S Bur Mines Bul 54: 1-27 '13; Same cond. Iron Age 92:289-90 Ag 7 '13
 Investigation of cupola melting operations. il diags Foundry 41:309-18 Ag '13
 Kerosene for steel heating furnaces. H. C. Spillman. il plan Mach 29:125-6 O '13
 Tests of cupola gases and temperatures. A. W. Belden's report. il Iron Tr R 52:1163-5 Je 26 '13

Fuller's earth

- Fuller's earth. C. L. Parsons. U S Bur Mines Bul 71:1-26 '13

Fulton, New York

- Broadway bridge across Oswego river and the New York barge canal at Fulton, N. Y. il plan Eng Rec 67:88-90 Ja 25 '13

Fulton (tugboat)

- Experimental tugboats: the Fulton and the Froude. il Sci Am S 75:12-3 Ja 4 '13
 Experiments on the Fulton and the Froude. C. H. Peabody. plans Int Marine Eng 18: 7-13 Ja '13

Fumes, Smelter. See Smelter fumes**Fumigation**

- Fire extinguishing and fumigation by the Harker process. il diags Int Marine Eng 18:320-1 Jl '13

See also Disinfection and disinfectants

Functions, Exponential

- Application of hyperbolic functions. A. E. Kennelly. plan Elec W 61:450-1 Mr 1 '13

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Furnace chargers. See Blast furnaces—Charging**Furnaces**

- Balanced draft system of furnace regulation. il plan Power 37:181-3 F 11 '13
 Bernhardt open-hearth furnace. il diag Iron Age 91:832-3 Ap 3 '13
 Brass foundry furnaces. W. H. Parry. Metal Ind n s 11:423-4 O '13
 Broman oven furnace. R. Cederblom. plan Power 37:171-2 F 4 '13
 Case m-tallurgical furnace. il Eng & Min J 96:643 O 4 '13
 Case of the Talbot tilting furnace. Iron Age 92:568-9 S 11 '13
 Combination furnace for making steel, designed by E. C. Wills. il Iron Tr R 53:290-11 N 20 '13
 Combination, steel-making furnace; patented by F. B. Lamb. Iron Tr R 52:233 Ja 2 '13
 Cooling device for open-hearth steel furnaces. il diag Iron Age 91:649 Mr 13 '13
 Design of modern open-hearth steel furnaces: tilting and stationary types compared. B. Talbot. plans Iron Tr R 53:198-502 S 18 '13
 Economic combustion of low-grade or waste fuels. D. M. Myers. diags Eng M 45:227-40, 358-71 My-Je '13

Furnace details for smokeless combustion.

- Ind Eng 13:309 Jl '13
 Furnace for horizontal tubular boiler. R. Cederblom. plan Power 37:662-3 My 13 '13
 Furnaces for smoke suppression. diags Ind Eng 13:259-60 Je '13
 Generation of steam by waste heat from furnaces. F. Peter. diags Am Inst Min E Bul 81:2775-2803 D '13
 Heat-losses in furnaces. F. A. J. Fitzgerald. Am Inst Min E Bul 75:315-8 Mr '13
 Improved Regan stoking grate. il Power 37: 892-3 Je 24 '13
 Increasing the efficiency of MacDougall roasters at the Great Falls smelter of the Anaconda copper mining co. F. R. Corwin and S. S. Rodgers. diags Am Inst Min E Bul 79:1389-1428 Jl '13
 Innovations in furnace walls. R. O. Richards. diag Power 37:799-1 Je 3 '13
 Insulation of furnaces. C. R. Darling. Ind Eng 13:532-3 D '13
 Life of crucible steel furnaces. J. H. Hall. Am Inst Min E Bul 81:2379-81 S '13
 Maerz open hearth furnace. diag Iron Age 91:1118-9 My 8 '13
 Mystery of the predynastic furnace solved. M. N. Buckman. il Sci Am S 76:161-2 Ag 16 '13
 New crucible furnace. Foundry 41:83 F '13
 New design of open-hearth steel-furnace using producer-gas. H. F. Miller, jr. Am Inst Min E Bul 75:499-13 Mr '13; Discussion. 77: 567-70 My '13
 New design of regenerator chambers. H. F. Miller, jr. plan Iron Age 91:993-4 Ap 24 '13
 New design of regenerators for open-hearth furnaces. H. F. Miller, jr. diags Am Inst Min E Bul 78:1055-8 Je '13
 New open-hearth furnace designs. H. F. Miller, jr. diags Iron Age 91:648-9 Mr 13 '13
 New re-heating furnace. plan Automobile 28:1205 Je 12 '13
 Novel combination furnace for making steel: vessel for employing the side-blow, open-hearth and electric processes. il Foundry 41:547-8 D '13
 Oil-burning furnaces. R. T. Strohm. diags Elec W 62:1018-9, 1068-70 N 15-22 '13
 Open-hearth steel furnace progress. H. F. Miller, jr. diags Foundry 41:511-8 D '13
 Pitting of boilers due to furnace. H. Misostow. Power 38:376 S 9 '13
 Recent improvement in gas furnaces. diags Automobile 28:110 F 6 '13
 Regenerative gas-fired push furnace. F. Siemens. plan Eng M 44:624-6 Ja '13
 Regenerative heating furnace. diag Met & Chem Eng 11:421-2 Jl '13
 Shortcomings in open-hearth furnaces. Iron Age 91:1184 My 15 '13
 Smokeless furnaces now a certainty. J. M. Searle. Iron Tr R 53:1030-1 p 4 '13
 Standard smokeless furnace. diag Power 38: 4-5 Jl 1 '13
 Tilting open-hearth furnaces. B. Talbot. diag Eng M 46:262-1 N '13
 Tilting versus fixed open-hearth furnaces. Iron Age 92:624-5 S 18 '13
 Triplexing in steel works vs. Bessemer duplexing. F. A. Wilnot. Iron Age 92:819-20 O 9 '13
 Two new tilting furnaces at the open-hearth plant of the Lackawanna steel company. Buffalo. il plans Iron Age 92:550-3 S 11 '13; Iron Tr R 53:477-80 S 11 '13
 Use of waste heat of open hearth furnaces. il plan Iron Age 91:474-6 F 20 '13
 Utilization of the waste heat of regenerative furnaces. G. C. Stone. Am Inst Min E Bul 82:1461-2 O '13; Discussion. 81:2893-8 D '13
 Utilizing the waste heat from brass furnaces; various types designed to facilitate melting. J. Horner. plans Foundry 41:113-6 Mr '13
 Vertical-lift furnace doors. il diags Power 37: 814-5 Je 10 '13
 Wedge roasting furnace with external fire-boxes. diag Eng & Min J 45:596 Mr 8 '13
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Atlas ball gages. *il* *Mach* 19:731-2 My '13

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Designs of and materials for gages. L. L. Haas. *plans Am Mach* 38:141-5 Ja 23 '13

Gage for indicating the depth of liquids in tanks, etc. *il* *Ind Eng* 13:225-6 My '13

Improved gage for twenty-nine degree thread tools. E. Chipman. *il* *Mach* 19:464-5 F '13

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Measuring the sewage of Sacramento. *il* *plan Eng Rec* 68:191-2 Ag 16 '13

New strain-gage for live-load stresses. *il* *Eng N* 70:701 O 9 '13

Twist drill and steel wire gages. J. R. Allan. *Mach* 19:519 Mr '13

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Brier Hill steel company plant for galvanizing sheets. *il* *Iron Tr R* 53:173-5 Jl 24 '13

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Garage economy depends on its layout. *plans Automobile* 29:461-6 S 11 '13

Garage men protest against separators: regulations of Municipal explosives commission. *plan Automobile* 28:695 Mr 20 '13

Garage problem. *Elec W* 61:814 Ap 19 '13

Ideal garage for electric cars. *Automobile* 28:1111 My 29 '13

Mechanical and electric traction on the Paris streets. J. Boyer. *il* *Eng M* 41:56-65 O '12

Portable garage. S. Oxberry. *il* *Automobile* 28:1237-41 Je 19 '13

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Arrangement of the garden city. *Arch Rec* 34:479-80 N '13

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New York garnets. *Eng & Min J* 96:1016-7 N 29 '13

Gas

Commercial and financial aspects of gas manufacture. G. B. Cortelvou. *Sci Am S* 75:266-7, 274-5 Ap 26-May 3 '13

Legal specifications for illuminating gas. *Eng Rec* 68:171 Ag 16 '13

See also Acetylene; Blast furnace gas; Coke-oven gas; Gas as fuel; Gas cleaning; Gas lighting; Gas manufacture and works; Gas power; Gas producers; Gases; Mine gases; Oxy-acetylene flame; Petroleum

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Interference between oil and gas wells and coal mines. *Eng N* 69:450-3 Mr 6 '13

Kansas and Oklahoma gas fields. L. L. Wittich. *il* *Colliery* 33:386-9 F '13

Measurement of natural gas; discussion of paper by T. R. Weymouth. *Am Soc M E J* 35:289-94 F '13

Natural-gas gasoline. C. T. Hutchinson. *Eng M* 45:596-8 Jl '13

Saving our natural gas. *Sci Am* 109:66 Jl 26 '13

Waste of natural gas. *Eng & Min J* 96:160 Jl 25 '13

Waste of natural gas. R. Arnold and F. G. Clapp. *Eng & Min J* 96:296 Ag 16 '13

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Big Ford gas engine. F. R. Low. *il* *Power* 38:128-31 Jl 22 '13

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Classification of oil engines. O. P. Ostergren. *plans Power* 37:187-9 F 11 '13

Coal engine. *il* *Sci Am* 108:436 My 10 '13

Developments in oil fuel burning. E. H. Peabody. *il* *Int Marine Eng* 18:14-7, 60-4, 112-4 Ja-Mr '13; Same cond. *Power* 37:205-8, 244-6 F 11-18 '13

Developments of the gas engine. E. Brown. *Power* 37:529-31 Ap 15 '13

Diesel and Wentworth engines. J. F. Wentworth. *Power* 37:338-41 Mr 11 '13

Difficulty in starting a gas engine. H. Westwood. *Power* 37:711 My 20 '13

Dörwald heat engine. *Sci Am S* 76:371 D 13 '13

Double-acting two-stroke gas engine. *il* *Iron Age* 91:1224-5 My 22 '13

Engine that will run on several fuels. *il* *Sci Am* 108:228-9 Mr 8 '13

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French kerosene motor for automobiles; Bellem engine starts cold on kerosene and runs on any kind of crude oil. *il* *plan Automobile* 28:679-81 Mr 20 '13; Same cond. *Eng M* 45:272-4 My '13

Gas engine jacket circulating systems. A. C. Wilson. *diags Power* 37:299-300 Mr 4 '13

Gas-engine silencers. W. H. Booth. *Power* 37:782 Je 3 '13

Gas-engine sounds. A. L. Brennan, jr. *Power* 37:709-10 My 20 '13

Gas engines in blast furnaces and steel plants. H. J. Freyn. *Iron Tr R* 52:1242-8 My 29 '13

Same cond. *Iron Age* 91:1299-1302 My 29 '13

Gasoline and oil power on the farm. P. S. Rose. *Sci Am* 108:120 F 1 '13

Gasoline motor with plane slide valves. *diags Automobile* 28:1060-2 My 22 '13

Heavy oil engine design. *Ind Eng* 13:366-7 Ag '13

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- Heavy-oil engine in marine service and its influence upon battleship design. R. C. H. Reid. *il Sci Am S 75:113-4 F 22 '13*
- Heavy oil Kromhout engine with ignition chamber. O. H. Wildt. *diag Am Soc M E J 35:527-9 Mr '13*
- Horizontal crude oil engine brought out by the St. Marys' machine company. St. Marys, Ohio. *diag Iron Age 91:1486 Je 19 '13*
- Horsepower of small gas engines. Power 38: 539 O 14 '13; Same. *Sci Am S 76:339 N 29 '13*
- How the Fulton-Tosi oil engine is constructed. *il diag Iron Tr R 53:1141-2 D 25 '13*
- Illmer two-stroke-cycle gas engine. *il plan Power 37:743-5 My 27 '13*
- Improvements in gas engine design. G. M. Strombeck. *Mach 19:39-40 S '12*
- Increase of output of internal-combustion engines and a new six-stroke cycle engine. E. Schimanek. *diag Am Soc M E J 35:701-4 Ap '13*
- Industrial locomotive driven by a crude oil engine. *il Eng N 69:64-5 Ja 9 '13*
- Internal combustion engine using coal fuel invented by A. M. Low. *plan Ind Eng 13: 31 Ja '13*
- Jacket water requirements of internal combustion engines. R. Trautschold. *Power 37: 494-5 Ap 8 '13*
- James internal combustion engine. *il Sci Am 108:456 My 17 '13*
- Junkers engine. F. E. Junge. *il Power 37: 120-1, 417-8 Ja 28 Mr 25 '13*
- Junkers vs. Diesel engine. A. M. Levin. *Power 37:671-2 My 13 '13*
- Knock in gas engine. A. M. Leonard; R. H. Danforth. *Power 37:350-1 Mr 11 '13*
- Location of gasoline engine troubles made easy. *il Sci Am 108:34-5 Ja 11 '13*
- Low coal engine. *il Power 37:86 Ja 21 '13*
- Low's gasoline motors à la Diesel. *plans Automobile 28:632-3 Mr 13 '13*
- Lubrication of gas engine cylinders. A. L. Brennan, jr. *Power 37:119-20 Ja 28 '13*
- Lubrication of gas engine cylinders. L. L. Brewster. *Power 37:341 Mr 11 '13*
- Machining the Keystone gasoline engine parts. F. B. Jacobs. *il Mach 19:350-1 Ja '13*
- Marine oil engine. T. Lucas. *plans Int Marine Eng 18:56-9 F '13*; Same cond. *Eng M 45:114-7 Ap '13*
- New Diesel engine. *Sci Am S 75:271 Ap 26 '13*
- New kerosene vaporizer demonstrated. *Sci Am 109:125 Ag 16 '13*
- New large gas-engine; valveless, two-cycle, vertical engine. A. E. L. Chorlton. *il Eng M 44:606-9 Ja '13*
- New type of gasoline engine. *il Eng Rec 67: sup 41 F 15 '13*
- Oil-engine characteristics. *Elec W 61:77-8 Ja 11 '13*
- Oil engine in railway water service. C. R. Knowles. *Ry Age 55:289-90 Ag 15 '13*
- Oil engines for driving electric generators. *Ind Eng 13:29-30 Ja '13*
- Oil-motor industry in Italy. *diags Power 38:504-6 O 7 '13*
- Oil-motor power at Leipzig building exposition. A. Gradenwitz. *il Power 38:396 S 16 '13*
- Operating costs of small gas engine plant. M. W. Utz. *il Power 37:224 F 18 '13*
- Paragon engine. *plan Power 37:225-6 F 18 '13*
- Performance of engine operating on coke-oven gas. *il Power 37:633-4 My 6 '13*
- Possibilities of the marine oil engine. J. F. Wentworth. *Int Marine Eng 18:129-30 Mr '13*
- Practical operation of gas engines using blast-furnace gas as fuel. C. C. Sampson. *diags Am Soc M E J 35:767-83 My '13*; Same. *Iron Age 91:1120-3 My 8 '13*; Same. *Iron Tr R 52:1120-4 My 15 '13*; Same. *Sci Am S 76:185-7 S 29 '13*; Same cond. *Power 37:821-3 Je 10 '13*; Discussion. F. H. Wagner. *Am Soc M E J 35:1276-9 Ag '13*
- Preheated air. J. Barraja-Frauenfelder. *Int Marine Eng 18:173 Ap '13*
- Pressures in gasoline engines. G. A. Field. *Power 38:56 Jl 8 '13*

- Principles of fuel oil engines. C. F. Hirshfeld. *il Sci Am S 76:46-7, 61-4, 74-5 Jl 19- Ag 2 '13*
- Recent development of gas power in Europe. H. J. Freym. *Eng N 69:228-30 Ja 30 '13*; Same. *Am Soc M E J 35:237-49 F '13*
- Recovery of heat lost in explosion engines. G. Delesson. *Am Soc M E J 35:1689-91 N '13*
- Removing carbon deposit with oxygen. *il Sci Am 109:125 Ag 16 '13*
- Removing carbon from gas engines with de-natured alcohol. J. A. Anglada. *Iron Age 92:616-7 S 18 '13*
- Saving in power cost with a gas engine. F. R. Lurkin. *Power 38:93 Jl 15 '13*
- Silencer for gas engines. *il Sci Am 108:544 Je 14 '13*
- Small internal combustion engines on land and water. *Sci Am 108:304 Ap 5 '13*
- Snow high-compression oil engine. A. E. Ballin. *il Power 38:229-30 Ag 12 '13*
- Stationary oil engines; manufacture of small sizes. *Sci Am S 76:383 D 13 '13*
- Status of the large gas engine in Europe. P. Langer. *diags Iron Age 92:1332-5 D 11 '13*; Same cond. *Power 38:891-3 D 23 '13*
- Trials of a 100 brake-horse-power oil engine; Junkers marine engine. *il Sci Am S 76: 348-9 N 29 '13*
- Triple-screw motor ship Alkmaar. J. R. Wilson. *Int Marine Eng 18:32 Ja '13*

See also Alcohol engines; Automobile engines; Carbureters; Cylinders; Diesel engines; Diesel locomotives; Gas power plants; Gas producers; Gas tractors; Gas turbines; Indicators; Locomotives; Gas and oil; Motor boats; Motor cars (railroad); Motor ships

Cooling

- Cooling a gas engine by internal injection. *diag Eng N 70:594-5 S 25 '13*
- Cooling gas engines. *Mach 20:303 D '13*
- Cooling gas engines in a new way. *il Sci Am 109:160 Ag 30 '13*
- New method of cooling gas engines. *Power 38:332-4 S 2 '13*
- New method of cooling gas engines. B. Hopkinson. *diag Iron Age 92:392-3 Ag 21 '13*; *Ind Eng 13:449-50 O '13*

Fuel

- Delivery of fuel into the cylinders of internal-combustion engines from under the piston rings. V. Poksziszewski. *Am Soc M E J 35:1177-9 Jl '13*
- Fuel economics of the oil engine. J. A. Secor. *Iron Age 91:974-6 Ap 17 '13*
- Fuel for oil engines; qualities required. *Sci Am S 75:411 Je 28 '13*
- Fuels for heavy-oil engines. I. C. Allen. *Eng M 45:886-8 S '13*
- Heating fuel oil. B. F. Hartley. *plan Power 37:60 Ja 14 '13*
- Heavy oil as fuel for internal-combustion engines. I. C. Allen. *Ind Eng 13:392-5 S '13*; Same. *Sci Am S 76:326-7 N 22 '13*
- Power from kerosene: using oil, kerosene and distillates in the ordinary gas engine. L. W. Ellis and W. R. Dray. *il Sci Am S 75: 105-6 F 15 '13*; Excerpts. *Sci Am 108:246-7 Mr 15 '13*
- Waning supply of gasoline. J. A. Secor. *Sci Am S 75:271-2 Ap 26 '13*
- Will the automobile be driven by kerosene? H. A. Morris. *il Sci Am 108:38 Ja 11 '13*
- Working fluid of internal-combustion engines. D. Clerk. *Ind Eng 13:405-8 S '13*

See also Automobile engines—Fuel; Gas as fuel; Gasoline; Kerosene; Motor spirit; Petroleum as fuel

Ignition

- High-tension ignition with batteries. A. L. Brennan, jr. *Power 37:635 My 6 '13*
- Igniters for oil engines. W. J. Demorest. *plan Power 37:377-8 Mr 18 '13*
- Ignition devices. H. R. Van Deventer. *Sci Am 108:513 Je 7 '13*
- Ignition from dry cells. A. L. Brennan, jr. *Power 37:17-8 Ja 7 '13*
- Make-and-break igniters. E. Pagett. *il Power 38:198-9 Ag 5 '13*

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Time of ignition vs. economy. A. B. Morrison, jr. *Power* 38:397 S 16 '13

See also Automobile engines—Ignition

Testing

Brake test on a 75-hp oil engine. A. A. Potter and W. W. Carlson. *il Elec W* 61:105-6 Ja 11 '13

Heat balance of a gas engine. J. C. Smallwood. *Power* 37:452-4 Ap 1 '13

Test of a kerosene-oil engine. H. D. Wile. *il Elec W* 62:389 Ag 23 '13

Tests on small gasoline engines. F. M. White and E. A. White. *Power* 38:299-301 Ag 26 '13

Gas as fuel

Exhaust gases from oils and gas fuels. J. C. Smallwood. *Power* 38:682-3 N 11 '13

Producer gas as a substitute for oil for furnace work. Met & Chem Eng 11:107 F '13

Producer gas in heating furnaces. E. Brown. *Power* 37:376-7 Mr 18 '13

Surface combustion. C. D. McCourt. *Eng M* 45:589-92 Jl '13

System of burning producer gas. C. M. Garland. *plan Iron Age* 92:664-6 S 25 '13

See also Blast furnace gas; Gas and oil engines; Gas power; Gas power plants; Gas producers

Gas burners

Development of improved gas-heating appliances. C. E. Lucke. *diags Eng N* 70:1186-8 D 11 '13

Gas cleaning

Apparatus for catching cinders in gases; blast furnace gas cleaning. *il Iron Age* 92:547-9 S 11 '13; Same. *Sci Am S* 76:316-7 N 5 '13

New process of cleaning producer gas. *il Power* 38:823-4 D 9 '13

New process of cleaning producer gas. H. F. Smith. *il diag Am Soc M E J* 35:1601-8 N '13; Same. *Iron Age* 92:1158-9 N 20 '13; Same cond. *Ind Eng* 13:531 D '13

See also Blast furnace gas

Gas companies

Commercial and financial aspects of gas manufacture. G. B. Cortelyou. *Sci Am S* 75:266-7, 274-5 Ap 26-May 3 '13

Education of employees. L. Galloway. *J Account* 15:35-52 Ja '13

Fair rate of return for public utilities as affected by unearned increment. *Eng N* 69:858-60 Ap 24 '13

Gas rate decision in New Jersey. *Elec Ry J* 41:35-7 Ja 4 '13

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Gas, electric & street railway association of Oklahoma

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Friction of gas flow in pipes. *il Sci Am* 108:205 Mr 1 '13

Measurement of natural gas; discussion of paper by T. R. Weymouth. *Am Soc M E J* 35:289-94 F '13

Pitot tube in gas measurement. C. E. McQuigg. *diags Eng & Min J* 95:649-51 Mr 29 '13

Pitot tubes for gas measurement. W. C. Rowse. *il diags Am Soc M E J* 35:1319-80 S '13; Same cond. Met & Chem Eng 11:641-3 N '13

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Gas heating

Development of improved gas-heating appliances. C. E. Lucke. *diags Eng N* 70:1186-8 D 11 '13

Heating the Industrial exposition hall, Toledo, O. with artificial gas. A. H. Gindell. *il Heat & Ven* 14:31-3 Ja '13

Waste heat from gas and oil engines for heating buildings. *Power* 38:94-5 Jl 15 '13

Gas lighting

Commercial and financial aspects of gas manufacture. G. B. Cortelyou. *Sci Am S* 75:266-7, 274-5 Ap 26-May 3 '13

High-pressure gas lighting. *Eng Rec* 68:395 O 11 '13

See also Acetylene for lighthouses, buoys, etc.; Gas meters

Gas manufacture and works

Commercial and financial aspects of gas manufacture. G. B. Cortelyou. *Sci Am S* 75:266-7, 274-5 Ap 26-May 3 '13

Manufacture of artificial gases. J. M. Rusby. *il J Fr Inst* 176:17-41 Jl '13

Operation of an English producer gas supply works, South Staffordshire. H. A. Humphrey. *Eng N* 69:160-1 Ja 23 '13

Producer gas for power purposes; chemical principles and mechanical factors in its manufacture. H. F. Smith. *il Sci Am S* 75:120-3 F 22 '13

See also Gas companies; Gas producers

Gas meters

Accuracy of the Thomas meter. W. C. Rowse. *Am Soc M E J* 35:1366-73 S '13

Pitot tube in gas measurement. C. E. McQuigg. *diags Eng & Min J* 95:649-51 Mr 29 '13

Pitot tubes for gas measurement. W. C. Rowse. *il diags Am Soc M E J* 35:1319-80 S '13; Same cond. Met & Chem Eng 11:641-3 N '13

Trouble with gas meter. L. M. Johnson. *il Power* 37:155 F 4 '13

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Comparative cost of gas and steam plants. L. B. Lent. *Power* 38:365-6 S 9 '13

Comparative economy of producer gas and steam for pumping stations. *Eng Rec* 68:262-3 S 6 '13

Cost of power with small gas engine unit. S. B. Moore, jr. *Power* 37:52-3 Ja 14 '13

Gas-driven blowers at Bethlehem steel co. A. West. *Iron Age* 91:1303-5 My 29 '13; Same. *Iron Tr R* 52:1400-3 Je 19 '13

Gas engine refrigerating plant. *diags Power* 37:122-4 Ja 28 '13

Gas engines vs. steam for pumping. *Power* 38:788-9 D 2 '13

Gas power for collieries. S. F. Walker. *il diags Colliery* 33:613-6 Je '13

Humphrey pumps for London water-works. *plans Power* 37:602-4 Ap 29 '13

Recent development of gas power in Europe. H. J. Freyn. *Eng N* 69:228-30 Ja 30 '13; Same. *Am Soc M E J* 35:237-49 F '13

Utilizing initial gas pressure. *plan Power* 37:710 My 20 '13

See also Blast furnace gas; Coke oven gas; Gas and oil engines; Gas as fuel; Gas power plants; Gas producers; Gas turbines; Power cost

Gas power plants

Distribution of producer gas. *Elec W* 61:277-8 F 8 '13

Gas engines in blast furnaces and steel plants. H. J. Freyn. *Iron Tr R* 52:1242-8 My 29 '13

Same cond. *Iron Age* 91:1299-1302 My 29 '13

Gas power plant in wool warehouses, South Boston. E. F. Learned. *il Power* 37:569-70 Ap 22 '13

Improvements at the plant of the Falk co., Milwaukee. *il plans Iron Tr R* 52:1449-54 Je 26 '13; Same. *Foundry* 41:325-30 Ag '13

Producer-gas situation in the United States. map *Power* 38:16-7 Jl 1 '13

Record of a suction gas-producer plant. G. W. Muench. *Power* 37:604-5 Ap 29 '13

Status of the gas-producer plant. *Eng Rec* 67:539 My 17 '13

Test of gas producer plant. L. L. Brewster. *Power* 37:153-4 F 4 '13

Utilizing waste heat of a small gas engine. *plan Power* 38:922-3 D 30 '13

See also Blast furnace gas; Coke oven gas; Gas and oil engines; Gas power; Gas producers

Gas producers

- Coal engine. *il* Sci Am 108:436 My 10 '13
 Commercial practice of fuel gas production: tests at McGill university, Montreal, plans *Iron Tr R* 52:627-33 Mr 13 '13
 Effect of variable load on gas producers. R. Trauttschold. *Power* 38:167-8 Jl 29 '13
 Farnham bituminous producer. *diags* *Power* 38:538 O 14 '13
 Gas producer and waste fuels. F. Fielden. *Power* 37:262-4 F 25 '13
 Gas-producer chemistry. G. W. Muench. *diag* *Power* 38:433-4 S 23 '13
 Gas producers for small heating furnaces. *Iron Age* 91:657 Mr 13 '13
 Heat balance of a producer. J. C. Smallwood. *Power* 37:897-9 Je 24 '13
 Hints on gas-producer operation. C. H. Bromley. *Power* 38:56-7 Jl 8 '13
 Injurious processes in gas producers. J. Hinder. *Am Soc M E J* 35:1691-2 N '13
 Lignite as a fuel for gas producers. G. W. Muench. *Power* 38:366-7 S 9 '13
 Lignite suction-producer operation. G. W. Muench. *Power* 38:824-5 D 9 '13
 Lignite suction-producer troubles. G. W. Muench. *Power* 38:91-2 Jl 15 '13
 Low's combined gas producer and engine. *il* *diag Eng & Min J* 95:1140-1 Je 7 '13
 Moore byproduct recovery producer. J. A. Seager. *plan* *Power* 38:266-7 Ag 19 '13
 New gas producer constructions with special regard to steam boiler firing. Gwosdz. *diag* *Am Soc M E J* 35:1692-4 N '13
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 Producer gas for power purposes: chemical principles and mechanical factors in its manufacture. H. F. Smith. *il* *Sci Am S* 75:120-3 F 22 '13
 Quality and uniformity of producer gas. R. Trauttschold. *Power* 37:634-5 My 6 '13
 Reading iron co.'s new gas producer. *il* *Power* 38:334 S 2 '13
 Sawmill refuse as fuel in gas producers. C. E. Snyppe. *Eng M* 44:96-8 O '12
 Slagging gas producer. W. H. Blauvelt. *bibliog* *Am Inst Min E Bul* 84:2823-7 D '13
 Steam generator for gas producers. *diag* *Iron Age* 92:1327 D 11 '13
 Up-draft rotary gas producer. *il* *Iron Age* 92:349 Ag 14 '13
 Warwill producer. J. A. Seager. *plan* *Power* 37:860-1 Je 17 '13

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- Efficiency management in gas tractor plant of the Hart-Parrr co. *il* *diags* *plan* *Iron Tr R* 52:49-60 Ja 2 '13
 Machining gas tractor parts by novel methods. *il* *Iron Tr R* 52:623-5 Mr 13 '13
 Towing tractor Arion. F. de Condé. *il* *diag* *Am Soc M E J* 35:885-6 My '13

Gas turbines

- Small recent improvements of gas turbines. *diags* *Automobile* 29:1198-1200 D 25 '13

Gas washing. See Blast furnace gas; Gas cleaning

Gas water heaters

- Various types of gas water heaters for varying conditions. F. W. Tower. *diags* *Dom Eng* 64:394-7 S 13 '13

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Gases

- Appearance of helium and neon in vacuum tubes. J. J. Thomson. *Sci Am S* 75:150 Mr 8 '13
 Birth of the atom: has matter been synthesised. *Sci Am S* 75:154-5 Mr 8 '13
 Corona method of removing smoke and dust from gases. W. W. Strong. *il* *Sci Am S* 76:156 S 6 '13
 Effect of incombustible dusts on the explosion of gases. H. B. Dixon and C. Campbell. *Sci Am S* 76:118-9 Ag 23 '13
 Gas-producer chemistry. G. W. Muench. *diag* *Power* 38:433-4 S 23 '13
 Gases met with in coal mines. *Colliery* 33:445-S, 492-5, 564-6, 631-2 Mr-Je '13
 Industrial combustible gases. J. M. Rusby. *il* *J Fr Inst* 176:1-41 Jl '13

Triatomic hydrogen and other researches in molecular physics. J. J. Thomson. *il* *Sci Am S* 75:157-8 Mr 8 '13
 World heating discoveries. W. H. Booth. *Power* 37:200 F 11 '13

See also Acetylene; Aerodynamics; Air; Firelamp; Gas; Hydrogen; Liquefaction of gases; Mine gases; Nitrogen; Oxygen; Ozone

Analysis

- Available CO₂ percentages. H. D. Fisher. *Power* 37:614-5 My 6 '13
 Determination of gases in smelter flues; and Notes on determination of dust losses at Washoe reduction works, Anaconda. E. M. Dunn. *il* *Am Inst Min E Bul* 80:2951-92 Ag '13
 Determination of sulphur trioxide in flue gases. *Eng & Min J* 95:953-4 My 19 '13
 Exact analysis of flue gases. *diag* *Ind Eng* 13:322-3 Jl '13
 Exhaust gas analysis. *Automobile* 28:288-91, 413-5, 466-7, 512-3 Ja 23, F 6-29 '13
 Laboratory apparatus for the exact analysis of flue gas. *Met & Chem Eng* 11:254-6 My '13
 Modification of the Jäger method of gas analysis. C. H. Worrell. *plan* *Met & Chem Eng* 11:245-7 My '13
 Orsat apparatus: new design of gas analysis apparatus. *il* *Iron Age* 92:1274-5 D 4 '13

Gasoline

- Condensation of gasoline from natural gas. G. A. Burrell and F. M. Seibert. *Sci Am S* 76:262-3 D 6 '13
 Fuel economics of the oil engine. J. A. Secor. *Iron Age* 91:974-6 Ap 17 '13
 Gasoline and its substitutes. *Sci Am* 108:276 Mr 22 '13
 Gasoline and kerosene situation. J. A. Secor. *Sci Am* 108:459 My 17 '13
 Gasoline situation. J. A. Secor. *Eng M* 45:434-7 Je '13
 Gasoline slot machine. *il* *Sci Am* 109:309 O 18 '13
 High cost of fuel arouses consumers. *Automobile* 28:273 Ja 23 '13
 Natural-gas gasoline. C. T. Hutchinson. *Eng M* 45:596-8 Jl '13
 Sidewalk gasoline pumps draw transient trade. *Automobile* 29:659-4 O 9 '13
 Testing flow of fuel thru nozzles. R. M. Anderson. *Automobile* 28:1268 Je 19 '13
 Warning supply of gasoline. J. A. Secor. *Sci Am S* 75:271-2 Ap 26 '13

Gasoline, Substitutes for

- Britain's struggle to evolve new liquid motor fuels. *Automobile* 28:1121-2 My 29 '13
 Fuel situation in England. J. S. Critchley. *Automobile* 28:849 Ap 17 '13
 Gasoline and its substitutes. *Sci Am* 108:276 Mr 22 '13
 \$100,000 prize for a gasoline substitute. S. Petman. *Sci Am* 108:165 F 15 '13
 Problem of the world's oil supply. *Sci Am* 108:325 Ap 5 '13
 Taxi run 62 miles on 20 cents worth of fuel. *diag* *Automobile* 28:1167-8 Je 5 '13

Gasoline engines. See Gas and oil engines

Gatun locks. See Panama canal

Gauges. See Gages

Gayley, James, 1855-

- James Gayley receives the Perkin gold medal. *por* *Iron Age* 91:390-1 Ja 30 '13
 Story of the dry-blast process; speech at presentation of the Perkin medal. *por* *Met & Chem Eng* 11:71-4 F '13

Gear cutting

- Automatic gear cutting machine. *il* *Iron Tr R* 53:331-2 Ag 28 '13
 Boston gear hobbing machine. *il* *diag* *Mach* 19:868 Je '13
 Cutting elliptical gears on the miller. J. A. Welch. *il* *Am Mach* 38:731-2 My 1 '13
 Cutting twelve teeth in a thirteen-tooth blank. G. Ear. *diag* *Mach* 19:556 S '12
 Data on feeds for gear cutters. *Iron Age* 92:260-1 Jl 31 '13
 Difficult gear-cutting proposition. *il* *diag* *Mach* 19:655 My '13

Gear cutting *Continued.*

- Dimensions of spiral gear teeth. A. C. Maxwell. *Mach* 19:862 J1 '13
 Early automatic gear cutting machine. D. T. Hamilton. *il Mach* 20:19-22 S '13
 Geared turbines for ship propulsion. *Iron Age* 91:841 Ap 3 '13
 Improvement in gear cutting. T. W. Holloway. *diag Mach* 19:889 J1 '13
 Inspection tests for Cincinnati gear-cutting machines. *il Mach* 20:99-101 O '13
 Laying out gear templates. R. W. J. Stewart. *Am Mach* 38:818 My 15 '13
 Old gear cutting machine. *il Mach* 19:503 Mr '13
 Positive method of setting bevel gear cutter. F. J. Mould. *diags Mach* 20:299 D '13

Gearing

- Advantages of cast-iron gears. E. H. Trick. *Mach* 20:48 S '13
 Automatic screw machine drive. *il diags Iron Age* 91:820-1 Ap 3 '13
 Figuring out gears for speed-boxes. J. J. Densman. *Mach* 19:588-9 Ap '13
 Geared drive for electric motors. *Ind Eng* 13:476-7 N '13
 Gears for machine-tool drives. J. Parker. *Am Soc M E J* 35:1645-53 N '13; Same cond. *Iron Age* 92:1252-3 N 27 '13
 Heat-treated gears in machine tools. A. C. Gleason. *diags Iron Age* 92:1020-3 N 6 '13; Same. *Iron Tr R* 53:1113-6 D 25 '13; Same. *Mach* 20:290-3 D '13
 Heat-treated gears in machine tools. J. H. Parker. *plans Iron Age* 92:1154-6 N 20 '13; Same. *Mach* 20:294-6 D '13
 Heat-treatment of gears at the Boston gear works, Norfolk Downs, Mass. G. L. Colburn. *il diags Mach* 19:757-9 Je '13
 Hydraulic speed-change gear or variable speed power transmission. *il Eng N* 69:1141-3 My 29 '13
 Hydraulic variable speed gear. *il Sci Am* 108:488 My 31 '13
 Machine cut herring-bone gear. *il Sci Am* 109:214 S 13 '13
 Machine for rolling gears from drop forgings. *il Iron Tr R* 52:862-3 Ap 10 '13
 Making patterns for machine-molded gears. J. Horner. *plans Foundry* 41:11-5 Ja '13
 Mechanical gearing for propulsion of ships. C. A. Parsons. *il diags Int Marine Eng* 18:233-7 Je '13
 Mechanical safeguarding—gears. F. A. Barker. *il Am Ind* 13:sup 1-4 F '13
 New connecting-rod gear for engines and pumps. *il diag Mach* 20:316 D '13
 Novel reducing gear. *plan Power* 37:598 Ap 29 '13
 Pitch of toothed wheels of different materials in mesh. R. Krell. *Am Soc M E J* 35:1570-1 O '13
 Planetary gearing—oil pump troubles. *diag Mach* 19:50-1 S '12
 Power transmitted by herring-bone gears. J. E. Holveck. *Mach* 19:782-4 Je '13
 Practical chart for determining the horsepower of spur gears. F. W. James. *Eng N* 70:714-6 O 9 '13
 Selecting the number of teeth for gears and sprockets. G. M. Bartlett. *Mach* 19:39 S '12
 Standard involute gearing. *Am Soc M E J* 35:1405-20 S '13
 Strength of gear teeth. G. H. Marx. *il diags Am Soc M E J* 35:107-161 Ja '13
 Tests on a 10,000 horse-power Föttinger transformer: hydraulic gear for marine turbines. A. Gradenwitz. *il Sci Am* 108:536 Je 14 '13
 Turbine reduction gear in relation to battleship fighting power. *il diag Sci Am* 109:317-8 O 25 '13
 Turning and forming cluster gears. H. M. Wood. *il Mach* 19:507 Mr '13
 Waterbury tool co. hydraulic transmission gear. *il diag Iron Age* 91:1284-6 My 29 '13
 Worm and helical gears as applied to rear axle drives; abstract of paper by Frank Burgess. *Mach* 19:36 S '12
See also Automobiles—Gearing; Gear cutting; Machinery—Design; Power transmission; Valves and valve gears

Gearing, Bevel

- Automobile bevel drive gears; forging, machining, heat-treating, inspecting and assembling. D. T. Hamilton. *il Mach* 19:417-22 F '13
 Bevel-gear drive for shafts running in the same direction. F. W. Clough. *diags Mach* 19:800 Je '13
 Duplication of gears having long and short addenda. E. W. Baxter. *Mach* 19:775-7 Je '13
 Generating the skew bevel gear. M. Uhlmann. *il Mach* 19:543 Mr '13
 Patterns for bevel gears. O. F. Berg. *plan Foundry* 41:71 F '13
 Practical form of tooth for skew bevel gears. G. M. Bartlett. *Mach* 19:373-4 Ja '13

Gearing, Spiral

- Determining the lead of spiral gears. G. H. Gardner. *Mach* 19:52-3 S '12
 Direct-current turbo-generators with reduction gears for railway service. *il Elec Ry J* 41:326-9 F 22 '13
 Formulas for spiral gear combinations. L. G. Zesbaugh. *Mach* 19:525 Mr '13
 Selecting the cutter for milling spiral gears; with data sheet supplement. G. W. Burley. *Mach* 19:435 F '13
 Spiral gear design; with data sheet supplement. J. H. Carver. *Mach* 19:365 Ja '13

Gearing, Worm

- Chart for the design of worm gearing. F. A. Halsey. *Am Mach* 38:135-7 Ja 23 '13
 Investigation of efficiency of worm gearing for automobile transmission; discussion of paper by W. H. Kenerson. *Am Soc M E J* 35:676-80 Ap '13
 Lengths of worms and hobs. E. W. Baxter. *Mach* 20:193 N '13
 Notes on worm gearing. *Ind Eng* 13:364-5 Ag '13
 Worm and wheel as a drive. E. J. Lees. *Iron Age* 92:1462-3 D 25 '13
 Worm gearing for automobile transmission; records of a number of tests. *il diags Mach* 19:46-9 S '12

Gears. See Gearing**Gelatine molds**

- Gelatine molds. Concrete Cem 2:126 Mr '13
 Gelert, Johannes Sophus, 1852—Danish-American sculptor. C. H. Dorr. *il Arch Rec* 33:332-8 Ap '13

General electric company

- Research laboratory of applied electricity. C. Dantsizen. *il Sci Am S* 75:261-2 Ap 26 '13
 21st annual report, 1912. *Elec Ry J* 41:828-9 My 3 '13; *Elec W* 61:918-9 My 3 '13; *Iron Age* 91:1127 My 8 '13

Generators, Electric. See Dynamos**Genius**

- Heredity and genius. C. Kassel. *Sci Am S* 76:155 S 6 '13

Geological time

- Length of geological epochs; radium as the clock of ages. *Sci Am S* 75:374 Je 14 '13

Geology

- See also* Coal; Earthquakes; Glaciers; Joints (geology); Metals; Mineralogy; Ore deposits; Rocks, Igneous

Classification

- Classification of igneous rocks. H. Warth. *Sci Am S* 75:330-1 My 24 '13

Maps

- Applied geology in the Butte mines. F. A. Linforth. *Am Inst Min E Bul* 83:2611-23 N '13

Ontario

- Sudbury, Cobalt and Porcupine geology. W. G. Miller and C. W. Knight. *il map Eng & Min J* 95:1129-33 Je 7 '13

Geology, Economic

- Engineering applications of geology. E. C. Eckel. *Eng Rec* 67:667-8, 711-2 Je 14, 28 '13
 Microscopy in economic geology. R. Beck. *Eng & Min J* 95:1087-9 My 31 '13

Geology, Economic - Continued.

Ore deposits at Butte, Mont. R. H. Sales. *diags Am Inst Min E Bul* 80:1523-1626 Ag '13

Relation of outcrops to ore at Cananea, M. J. Elsing. *Eng & Min J* 95:357-62 F '15 '13
Searching for oreshoots in veins. *Eng & Min J* 95:941-4 My '10 '13

See also Abrasives; Asphalt; Cement; Clay; Coal; Coal lands; Copper ores; Gas; Natural; Gypsum; Iron ores; Metals; Mines and mineral resources; Ore deposits; Peat; Petroleum; Phosphates; Soils; Sulphur

German language

German language as an indispensable element of engineering progress. F. Koester. *Eng N* 69:681-5 Ap 3 '13

German silver

German silver. *Mach* 19:424 F '13
Microstructure of German silver. O. F. Hudson. *il Metal Ind n s* 11:209-10, 253-4 My-Je '13
What is German silver? A. A. Somerville. *Sci Am S* 76:142-3 Ag 30 '13

Germany**Commercial policy**

Germany's industrial policy in contrast to American tendencies. F. E. Junge. *Eng M* 44:680-9, 842-51 F-Mr '13

Defenses

Comparison of French and German strength in dirigible airships. *il Sci Am* 109:126 Ag 16 '13

Sea and air command: Germany's new policy in its relation to the British naval supremacy. *il Sci Am S* 75:392-5 Je 21 '13

Industries and resources

Formation and structure of the German potash beds. H. Boeke. *il Sci Am S* 75:406-7 Je 28 '13

Germany highly prosperous in spite of wars. *Iron Tr R* 52:83-4 Ja 2 '13

Germany's industrial policy in contrast to American tendencies. F. E. Junge. *Eng M* 44:680-9, 842-51 F-Mr '13

Manufactures

American mechanical engineers in Germany. *il Iron Tr R* 53:30-2 Jl 3 '13

From Cologne to Munich with American engineers. *il Iron Tr R* 53:131-4 Jl 17 '13

Germany's great industrial plants visited. *il Iron Tr R* 53:77-80 Jl 10 '13

Made in Germany. *Ind Eng* 13:396-7 S '13

Navy

Growth of a great navy. P. A. Hislam. *il Sci Am* 108:241-2 Mr 15 '13

Weather bureau

Germany's aeronautical weather bureau. *Sci Am* 108:262 Mr 22 '13

Gilding

Electro-deposition of gold. A. Jefferson. *Metal Ind n s* 11:250-2 Je '13

Gill, Irving J.

Garden apartments of California. E. M. Roorbach. *il plan Arch Rec* 34:520-30 D '13

Ginpoles

Ginpole of 10-in. pipe. *il diag Eng & Min J* 96:1119-20 D 13 '13

Girders

Chart for determining the section moduli of floor beams. *Eng N* 70:174 Jl 24 '13

Charts for designing plate-girders. G. D. Fish. *Eng N* 69:854-5 Ap 24 '13

Determination of moments in continuous beams. W. A. Slater. *Eng Rec* 68:70 Jl 19 '13

Economical depth of T-beams. R. W. Stewart. *Eng N* 69:844-5 Ap 24 '13

Economical design of steel girders embedded in concrete. G. Paaswell. *Eng N* 69:845 Ap 24 '13

Failures in building construction and their lessons. E. Godfrey. *Arch & Bldg* 45:77-82 F '13

Girders in the Grand Central terminal, New York city. plans *Eng Rec* 67:78-80 Ja 18 '13

Reinforced-concrete girders of unusual span. *il diag Eng Rec* 68:503 N 1 '13

Shear and rivet diagram for railway plate-girders. *Eng N* 70:823-4 O 23 '13

Strength of I-beams in flexure. H. F. Moore. *il diags Ill T Eng Exp Sta Bul* 68:1-10 '13

Strength of outstanding flanges in beams and columns. R. J. Roark. *Eng Rec* 68:722-3 D 27 '13

Unusual girder work in a Pittsburgh theater. *il plans Eng N* 70:1230-1 D 18 '13

See also Bridges; Building; Concrete, Reinforced; Roofs; Steel construction; Strains and stresses; Trusses

Glaciers

Glaciers and international boundaries. L. Martin. map *il Sci Am S* 76:129 Ag 30 '13

Greenland's Eden. R. G. Skerrett. *il Sci Am S* 75:52-3 Ja 25 '13

See also Icebergs

Glass

City car window-glass test. *Elec Rty J* 41:78 Ja 11 '13

Investigation of diffusing glassware. M. Luckiesh. plan *Elec W* 61:883-4 Ap 26 '13

See also Glass manufacture

Glass blowing. *See* Glass manufacture

Glass cutting

Electrical method for glass cutting. P. Edelman. *Sci Am* 108:11 Ja 4 '13

Glass manufacture

Machine for blowing window glass; Sievert process. *il Sci Am* 109:52-3 Jl 19 '13

See also Mirrors

Gliders. *See* Aeroplanes

Glucose

Glucose and starch industry in the United States. *Met & Chem Eng* 11:698-9 D '13

Goggles

Elements of safety in safety goggles. J. T. Brayton. *Iron Age* 92:1287 D 4 '13

How to prevent blindness among your employes. *il Foundry* 41:382-4 S '13; Same. *Iron Tr R* 53:414-6 S 4 '13; Same. *Ind Eng* 13:427-9 O '13

Protecting the eyesight of workmen. W. Talbot. *il Iron Age* 92:566 S 4 '13

Gold

Chisana gold district of Alaska. P. Thompson. *Eng & Min J* 96:1040-1 N 29 '13

Commercial movement of gold. *Eng & Min J* 95:171 Ja 18 '13

Gold and silver in Idaho in 1912. R. N. Bell. *Eng & Min J* 95:123-4 Ja 11 '13

Gold and silver production in 1912. *Eng & Min J* 96:604 S 27 '13

Gold and silver production in 1912. F. Hobart. *Eng & Min J* 95:51-2 Ja 11 '13

Gold production of the world. *Eng & Min J* 96:660 O 4 '13

Meaning of rolled plate, gold filled and solid gold. G. G. Wheeler. *Metal Ind n s* 11:256-7 Je '13

Sampling of gold-bullion. E. Keller. *Am Inst Min E Bul* 75:525-8 Mr '13

Transportation and deposition of gold. *Eng & Min J* 95:322 F 8 '13

See also Assaying; Cyanide process; Gilding; Gold dredging; Gold metallurgy; Gold mines and mining

Gold (as money)

Science and the cost of living. *Sci Am* 108:486 My 31 '13

Gold assaying

Assay of gold and silver by the iron-nail method. E. J. Hall and C. W. Drury. *Am Inst Min E Bul* 78:1659-66 Je '13; Same cond. *Eng & Min J* 96:1125-6 D 13 '13; Discussion. *Am Inst Min E Bul* 83:2683-92 N '13

Buying and selling silver and gold: the scientific side of the assay office at New York. H. J. Slaker. *il Sci Am* 109:144-5 Ag 23 '13

Gold dredging

Attempt to restrict gold dredging in California. L. H. Eddy. *Eng & Min J* 95:626 Mr 22 '13

Evolution of gold dredging machinery. A. H. Martin. *Mach* 19:370-1 Ja '13

Gold dredging - Continued.

- Gold dredging in 1912. R. E. Cranston. map Eng & Min J 95:113-6 Ja 11 '13
 Mining gold by proxy; the old-fashioned miner replaced by machinery. A. L. Dahl. il Sci Am S 75:321 My 24 '13
 Natoma no. 10; an all steel dredge. L. H. Eddy. il Eng & Min J 95:1079-83 My 31 '13
 Nechi river placer mining. Colombia. W. F. Ward. il map Eng & Min J 96:297-9 Ag 16 '13
 New gold dredges for Alaska. L. H. Eddy. il Eng & Min J 95:1211-3, 1251-2 Ja 25, Je 21 '13
 Repairing a California gold dredge. L. H. Eddy. Eng & Min J 96:340 Ag 23 '13
 Righting an overturned gold dredge. L. H. Eddy. il Eng & Min J 96:773-6 O 25 '13

Gold metallurgy

- Battery-sand-treatment plant. plans Eng & Min J 96:1023-4 N 29 '13
 Electrolysis of low grade gold bullion. T. W. Bouchelle. Eng & Min J 95:238-40 Ja 25 '13
 Evolution of methods of handling slime. H. N. Spicer. il Met & Chem Eng 11:181-3, 239-41 Ap-May '13
 Gold recovery by volatilization. Eng & Min J 95:1151-2 Je 7 '13
 Metallurgy of gold and silver in 1912. Met & Chem Eng 11:4-5 Ja '13
 Ore-treatment at Republic. Wash. F. A. Thomson. Am Inst Min E Bul 73:51-64 Ja '13
 Precipitation of gold and silver by metallic minerals. Eng & Min J 95:759-60 Ap 12 '13
 Refining at Pittsburgh-Silver Peak mill. L. Smith. il Eng & Min J 95:603-4 Mr 22 '13
 Role of certain metallic minerals in precipitating silver and gold. C. Palmer and E. S. Bastin. Am Inst Min E Bul 77:813-57 My '13
 Smelting precipitate at Cerro Prieto, Sonora, Mexico. H. S. Munroe. il diag Eng & Min J 95:1137-9 Je 7 '13
 Speiss as a precious metal collector. Eng & Min J 95:167-8 Ja 18 '13
 Volatilization processes in the metallurgy of gold. H. C. Parmelee. Met & Chem Eng 11: 230 My '13

See also Cyanide process; Gold milling; Ore treatment; Smelting; Stamp mills

Gold milling

- Cyaniding at Grass Valley, Cal. H. A. McGraw. il plan Eng & Min J 95:983-7 My 17 '13
 Free milling concentration; canvas table methods employed in California mills. A. H. Martin. Eng M 44:425-7 D '12
 Gold-milling progress in California. A. H. Martin. il Met & Chem Eng 11:640-1 N '13
 Grinding-pans vs. tube mills at the Homestake mine, S. Dak. Met & Chem Eng 11: 105-6 F '13
 Stamp milling in 1912. L. D. Huntoon. Eng & Min J 95:107-8 Ja 11 '13

Gold mines and mining

- Automatic sand sluicer. il Colliery 33:385 F '13
 Mining without timber in the Yukon. H. M. Payne. il Eng & Min J 95:325-6 F 8 '13
 Preliminary testing of placer ground. il Eng & Min J 95:702-4 Ap 5 '13
See also Gold dredging; Gold milling; Hydraulic mining

Alaska

- Annual reports, 1912. Treadwell group, Alaska. Eng & Min J 95:1278-9 Je 28 '13
 Data on Alaska Treadwell. Eng & Min J 95: 807-8 Ap 19 '13
 Developing the Alaska Juneau mine. plan Eng & Min J 96:1029 N 29 '13
 First report of Alaska gold mining co., from organization in August, to end of 1912. Eng & Min J 95:1133-4 Je 7 '13
 Placer situation at Fairbanks. Eng & Min J 96:1167-8 D 20 '13
 Work at the Alaska Gastineau. map Eng & Min J 96:748-50 O 18 '13

Australia

- Mount Morgan mine. F. Conly. il Eng & Min J 95:833 Ap 26 '13

California

- Stopping methods at the North Star mine. L. O. Kellogg. il Eng & Min J 96:1011-5 N 29 '13

Colombia

- Gold placers of Antioquia. M. H. De Hora. map Am Inst Min E Bul 79:1197-1200 J1 '13
 Nechi river placer mining. W. F. Ward. il map Eng & Min J 96:297-9 Ag 16 '13

Idaho

- Elk City mining district. A. L. Flagg. map Am Inst Min E Bul 76:571-80 Ap '13

India

- Evolution of methods of handling slime. H. N. Spicer. il Met & Chem Eng 11:181-3 Ap '13

Montana

- Southern Cross mine, Georgetown, Mont. P. Billingsley. map Am Inst Min E Bul 81: 2289-97 S '13

New Zealand

- Waihi gold mining co.'s annual report for year ended Dec. 31, 1912. Eng & Min J 96: 407-8 Ag 30 '13

Peru

- Nosciniscato placers. Eng & Min J 96:728 O 18 '13

South Africa

- Government gold mines in South Africa. A. C. Key. Eng & Min J 95:15-6 Ja 4 '13

Golden Horn

- Bridging the Bosphorus and the Golden Horn. H. G. Tyrrell. map Eng N 70:1020-1 N 20 '13

Goldfield consolidated mines co., Nevada

- Report for 1912. Eng & Min J 95:887-8 My 3 '13

Goldfish

- Curious exotic fishes. J. Boyer. il Sci Am 109:92 Ag 2 '13

Goldschmidt companies

- Growth of the Goldschmidt companies: a unique international development in the metal industry. Iron Age 91:1539 Je 26 '13

Golf balls

- Explosive golf balls. il Sci Am S 76:205 S 27 '13

Golf courses

- Night golf putting course. T. J. Little, jr. il Sci Am 108:543 Je 14 '13

Gondola car. See Freight cars**Goniometers**

- Goniometer for microscopes. C. C. Kiplinger. il Sci Am 108:271 Mr 22 '13

Goodwill

- Goodwill, patents, trade-marks, copyrights and franchises. P. J. Esquerré. J Account 15:21-6 Ja '13

Goodwin film and camera company

- Judicial decision involving the camera film. Sci Am 109:163 Ag 30 '13

Goodyear tire & rubber company

- Welfare work raises Goodyear co.'s efficiency. Automobile 28:1318-9 Je 26 '13

Goss, William Freeman Myrick, 1859-

- Portrait. Eng N 69:196a Ja 30 '13
 Sketch. Am Soc M E J 35:20-3 Ja '13
 Sketch. por Mach 19:411 Ja '13
 W. F. M. Goss, president of Am. Soc. M. E. G: M. Basford. Eng N 69:198-9 Ja 30 '13

Government, Municipal. See Municipal government**Government ownership**

- Agitation for government ownership of railways. Ry Age 55:688 O 17 '13
 False arguments on government ownership. E. P. Ripley. Ry & Eng R 53:1032 N 8 '13
 Government ownership of postal cars. Ry & Eng R 53:1152-3 D 13 '13
 New York state hydroelectric scheme. maps Elec W 61:33-6 Ja 4 '13
 Paper before National civic federation on government ownership of railroads. S. Low. Elec Ry J 42:1239-40 D 13 '13
 Possible savings under government ownership. C. Thorne; E. P. Ripley. Ry Age 55: 1020-1 N 28 '13

Government ownership—Continued.

Rhode Island's opportunity to experiment in state railway ownership. Eng N 69:791-2 Ap 17 '13

Should the government manufacture its own armor plate? Sci Am 109:62 Jl 26 '13

Uncle Sam's freight cars. J. G. Hill. Ry Age 55:414 S 5 '13

See also Government regulation of industry; Municipal ownership; Railroads and state; also New York conservation commission

Government printing office

Editing in the government printing office. F. A. Kidd. Il Inland Ptr 50:559 Ja '13

Government regulation of industry

Department on regulation of interstate and municipal utilities of the National civic federation. Elec W 61:185-6 Ja 25 '13

Discussion of public-utility regulation and accounting methods. Elec W 62:679-82 O 4 '13

Federal control of stock and bond issues. Eng N 70:935-6 N 6 '13

Gas rate decision in New Jersey. Elec Ry J 41:35-7 Ja 4 '13

Government mediation in railroad labor disputes. S. Low. Elec Ry J 41:212-4 F 1 '13; Same. Ry & Eng R 53:209-10 Mr 8 '13

Midyear banquet of Am. Elec. Ry. Assn., 1913. Elec Ry J 41:206-8 F 1 '13

Opportunity or menace—which? J Account 15:122-7 F '13

Our national resources and our federal government; discussion of paper of R. W. Raymond. Am Inst Min E Bul 74:319-29; 77: 571-81 F, My '13

Regulation of public utilities. W. J. Hagenah. Elec W 61:27-8 Ja 4 '13

Regulation of utilities by commission. H. Erickson. Ry Age 54:755-9 Mr 28 '13

Relations of government to industrialism. E. C. Eckel. Eng M 45:330-3 Je '13

Report of department on regulation of interstate and municipal utilities of National civic federation. E. M'Millin. Elec Ry J 41: 210-2 F 1 '13

Report of franchise committee of National municipal league. Elec Ry J 42:1107-8 N 22 '13

13th annual conference, 1913, of National civic federation. Elec W 61:231-2 F 1 '13

Wanted: legislation to promote business. Elec W 62:1243 D 20 '13

See also Land grants; Municipal ownership; Natural resources; Public service commissions; Public service corporations; Railroads and state; Street railroads—Public relations

Governors (machinery)

Clark centrifugal governor. Il Power 37:652 My 6 '13

Correcting trouble of inertia governor. J. C. Hawkins. diag Power 38:727 N 18 '13

Electro-mechanical waterwheel governor. Il Elec W 61:414-5 F 22 '13

New type of Pelton-wheel governor. diags Eng Rec 68:186 Ag 16 '13

Turbine pendulum governors of the De Temple governor construction company of Leipzig. O. Moog. Am Soc M E J 35:1048-50 Je '13

Grade crossings

City's side of grade-crossing elimination. R. Hoffman. Eng N 69:359 F 20 '13

Elimination of grade crossings in Cleveland. Il map Ry & Eng R 53:1166-4, 1144-7, 1178-81 N 29, D 13-20 '13

Flagging at grade crossings. T. H. Low. Sci Am 109:283 O 11 '13

Grade crossing elimination in cities: summary. Ry & Eng R 53:1148-50 D 13 '13

Grade-crossing scandal. Sci Am 109:62 Jl 26 '13

Grade separation laws and requirements: abstract of 27 state laws with tabular resumé of city requirements. Ry Age 55:1118-21 D 12 '13

Pennsylvania R. R. protests against New Jersey track elevation bill. Ry & Eng R 53:234 Mr 15 '13

Railway grade crossing with steel foundation. Il plan Eng N 69:118-9 Mr 6 '13

See also Railroads—Construction; Railroads—Signals; Railroads—Track

Grading (civil engineering)

Example of street grade improvement: Pittsburgh Hump cut. Il Eng N 69:491 Mr 13 '13

Grade reduction on street railways. C. H. Reeves. Il Eng N 69:72-6 Ja 9 '13

Project for regrading Rincon Hill, San Francisco. Cal. Il Eng N 69:400 F 27 '13

See also Railroads—Grades

Grading machines. See Indexing machines**Graffito. See Frescoes****Grafton, Richard, d. 1572**

Printers of note. W. C. Bloech. Inland Ptr 52:375-6 D '13

Grain cars

Grain car inspection. R. W. Schulze. Am Eng 87:33-4 Ja '13

Hopper bottom grain car. Grand Trunk Ry. Il Ry & Eng R 53:317 Ap 5 '13

Resolutions on grain cars and grain car service. Il Ry & Eng R 53:1166-7 D 20 '13

Grain elevators

Concrete grain elevator construction. R. P. Durham. Concrete Cem 2:41-3 Ja '13

Failure of the foundation of the new Canadian-Pacific elevator at Transcona. Il Ry Age 55:986-7 N 21 '13

Failure of the Transcona grain elevator. Il Eng N 70:944-5 N 6 '13

Floating pneumatic elevating and grain discharging plant. F. C. Coleman. Il Sci Am 109:48 Jl 19 '13

Grain elevator extension. Chicago Great Western Ry. Il Ry & Eng R 53:954 O 11 '13

Subsidence of concrete grain elevators at Transcona. Il Concrete Cem 3:259-60 D '13

Threatened collapse of leaning grain elevator at Winnipeg. Il Eng Rec 68:sup 45-6 N 1 '13

Grain handling

Floating pneumatic elevating and grain discharging plant. F. C. Coleman. Il Sci Am 109:48 Jl 19 '13

Gramophone. See Phonograph**Grand Rapids, Michigan****Water supply**

Construction of the Grand Rapids filtration plant. L. D. Cutcheon. Il Munic Eng 44: 492-8 Je '13

Water softening and decoloration. W. A. Sperry. Munic Eng 45:343-5 O '13

Grand Trunk railway system

Grand Trunk grade separation in Toronto. Il map Ry Age 54:1213-8 Je 6 '13

Grand Trunk offers New England line to state. Ry & Eng R 53:341 Ap 12 '13

Proposed extension of Grand Trunk railway system in New England. maps Eng N 69: 212-3 Ja 30 '13

Grandstands

Grandstand for the Brooklyn baseball club. plans Eng Rec 67:274-6 Mr 8 '13

Graphic methods

Design of clutch release shoes. J. S. Myers. Mach 19:723-4 My '13

Graphic solution for illumination problems. N. S. Dickinson. Elec W 62:586-9 S 20 '13

Graphic solution of compressed air transmission formula. N. Herz. Eng & Min J 95: 228-30 Ja 25 '13

Graphical method of determining moments of inertia. R. Kraus. Mach 19:697-8 My '13

Graphics applied to fault problems. E. R. Rice. Eng & Min J 95:609-12 Mr 22 '13

Graphic statics

Graphical statics applied to transmission-line calculations. A. Still. Elec W 62:230-2 Ag 2 '13

See also Bridges; Girders; Mechanical drawing; Roofs; Steel construction; Strains and stresses

Graphite

- Graphite in Babbitt metal. Foundry 41:6 Ja '13
 Graphite in boilers. J. A. Handy. Power 38: 37 J 1 '13
 Graphite in Madagascar. Eng & Min J 95: 378 F 15 '13
 Graphite industry. M. McNaughton. Eng & Min J 95:320 F 8 '13
 Graphite is successful. D. I. Curtin. Power 38: 375 S 9 '13
 Graphite lubrication. il Colliery 34:193-4 O '13
 Lubrication with oils and with colloidal graphite. C. F. Mabery. charts Sci Am S 76: 349-52 N 29 '13
 Metallized graphite for bearings and collector brushes: graphalloy. Elec Ry J 42:986 N 1 '13; Same. Elec W 62:926-1 N 1 '13
 Removal of scale by graphite. C. E. Nigh. il Diag Power 38:689-90 N 1 '13
 Some effects of temperature upon the resistance of graphite and carbon. E. F. Northrup. Met & Chem Eng 11:275 My '13
 Undesired quick action of brakes lessened by use of graphite. C. N. Remfry. Ry Age (Mech ed) 87:317-8 Je '13; Same cond. Ry Age 54:1033 My 9 '13

Graphite, Artificial

- Uses for artificial graphite. F. H. Davies. plan Eng M 44:415-6 D '12

Graphology

- Character in handwriting: the influence of temporary moods. W. L. French. il Sci Am S 76:199 S 27 '13
 Handwriting and human efficiency. W. L. French. il Sci Am 109:241-2 S 27 '13

Graphophone. See Phonograph**Grashof medal**

- Grashof medal presented to George Westinghouse. Sci Am 109:436 D 6 '13
 Westinghouse receives Grashof medal. Elec W 62:1145-6 D 6 '13

Gravel

- Compact Peekskill sand and gravel washing plant. il plan Eng N 69:514-5 Mr 13 '13
 Economical sand and gravel plant. il plan Eng N 69:1066-7 My 22 '13
 Improvements in sand and gravel washing. R. W. Dull. il Concrete Cem 2:129-31 Mr '13; Same. Ry & Eng R 53:202-3 Mr 8 '13
 River gravel on Panama canal construction. Ry & Eng R 53:776-7 Ag 16 '13

Grease. See Lubrication and lubricants: Oils and fats**Grease traps**

- Grease traps—their interior construction. F. W. Tower. diags Dom Eng 65:43-4 O 11 '13

Great Britain**Navy**

- Sea and air command: Germany's new policy in its relation to the British naval supremacy. il Sci Am S 75:392-5 Je 21 '13

Great Falls, Montana. See Anaconda copper mining co.**Great lakes**

- Lake commerce through Sault Ste. Marie canals during 1912. Eng Rec 67:647 Je 7 '13
 New route for downbound vessels to facilitate Great lakes shipping. il Iron Tr R 52:30-4 Ja 2 '13
 Transportation on the Great lakes. H. Coulby. Iron Age 91:1404-5 Je 5 '13

Great Lakes naval training station

- Filtration plant at Great Lakes, Ill. plans Eng Rec 67:205-6 F 22 '13

Great men

- Heredity and genius. C. Kassel. Sci Am S 76:155 S 6 '13

Great Northern railway

- Great Northern railway electrification in Montana. E. P. Burch. Elec Ry J 41:117-8 Ja 18 '13

Great Salt Lake, Utah

- Variation in level of Great Salt Lake, Utah. Eng Rec 67:729 Je 28 '13

Greenheart

- Greenheart timber. Sci Am 108:338 Ap 12 '13

Greenhouses

- Application of electric drive in greenhouses. il Elec W 62:841-3 O 25 '13
 Successful rules for heating greenhouses. Heat & Ven 10:18-20 Ap '13

Greenland

- Greenland's Eden. R. G. Skerrett. il Sci Am S 75:52-3 Ja 25 '13

Greenwood cemetery. See Brooklyn, N. Y.—Greenwood cemetery**Grenades**

- Fighting with dynamite and electricity. A. Gradenwitz. il diags Sci Am 109:488 D 27 '13

Grinding (ores, etc.). See Crushing machinery**Grinding and polishing**

- Ancient and modern methods of buffing. S. W. Rowsbar. Foundry 41:240-1 Je '13
 Efficient production of cylindrical work. C. H. Norton. il Am Soc M E J 35:95-106 Ja '13; Same. Ind Eng 13:4-6 Ja '13; Same. Iron Tr R 52:204-6 Ja 16 '13; Discussion. Am Soc M E J 35:629-31 Ap '13
 Emery-wheel truing device. D. A. Hampson. il Mach 19:57 S '12
 Exhaust systems for grinding, polishing and buffing wheels; specifications prescribed by N. Y. state dept. of labor. Mach 19:711-3 My '13; Same cond. Ind Eng 13:211-2 My '13
 Forming motor-car cylinders. Ind Eng 13: 12-3 Ja '13
 German manufacture of polishing felts. Metal Ind n s 11:73 F '13
 Grinding wheel sparks: how they indicate the character of steel. R. G. Williams. il Sci Am S 75:292-3 My 10 '13
 How a brass manufacturing firm cut its expense on grinding one line of tools. P. W. Blair. il Metal Ind n s 11:390 S '13
 Inspecting before grinding. R. J. Spence. Am Mach 38:159-60 Ja 23 '13
 Metal polishing—ancient and modern. S. W. Rowsbar. Foundry 41:157-8 Ap '13
 New portable rail grinder. il Elec Ry J 42: 427 S 13 '13
 Pertinent facts regarding felt polishing wheels. F. Dolge. Metal Ind n s 11:86 F '13
 Self-contained polishing apparatus and dust collector marketed by Leiman Brothers. il Ind Eng 13:508 D '13
 Time-saving methods of producing cylindrical work at Norton grinding co., Worcester, Mass. il Ind Eng 13:149-51 Ap '13
 Use of rough diamonds for metal grinding purposes. W. H. Parry. Metal Ind n s 11: 343-4 Ag '13
See also Dust; Emery wheels; Machine shop practice

Grinding machines

- Ball bearing grinding machine. il Iron Age 92:176-7 J 1 24 '13
 Bath universal grinding machine. il Mach 19: 394-5 Ja '13
 Belt-driven grinding and polishing machines. il Iron Age 91:535 F 27 '13
 Besly 53-inch vertical-spindle disk grinder. il Mach 19:67 S '12
 Brown & Sharpe plain grinding machines. il diags Mach 19:650-1 Ap '13
 Cincinnati 12-inch grinding machine. il Mach 19:391-2 Ja '13
 Cylindrical grinding machine. il Iron Age 91: 22 Ja 2 '13
 Diamond face grinding machine. il Mach 20: 154-5 O '13
 Disk grinding machine with three wheels. il Iron Age 91:763 Mr 27 '13
 Double-spindle ring wheel grinding machine. il Iron Age 91:365 F 6 '13
 Electric-driven plain grinding machine. il Iron Tr R 53:1147-8 D 25 '13
 Electric grinding machines. il Iron Age 91: 767 Mr 27 '13
 Electric rail-grinding machine. il diag Eng N 70:1181 D 11 '13
 Gardner products notable for extensive use of ball bearings. il Iron Age 91:302 Ja 30 '13
 Grinding machine for different levels. il Iron Age 92:982-3 O 30 '13

Grinding machines—Continued.

- Grinding machines. Met and Chem Eng 11: 174-5 Ap '13
- Heaviest roll-grinding and new surface-grinding machines. Iron Age 91:1225 My 22 '13
- Heavy-duty face-grinding machine. il Iron Age 92:661-2 S 25 '13
- Horizontal surface grinding machine. il Iron Age 92:656-7 S 25 '13
- Landis roll grinding machine. il Iron Tr R 53:377-8 Ag 28 '13; Iron Age 92:444-5 Ag 28 '13; Mach 20:58-9 S '13; Eng M 46:sup 10-1 D '13
- Motor-driven grinding machine for handling shafts and other work up to 20 feet. il Iron Age 92:1432-3 D 25 '13
- Motor-driven lever-feed disk grinding machine. il Iron Age 91:653 Mr 13 '13
- New surface grinding machine. il Ind Eng 13:438-40 O '13
- Norton plain grinding machine. il Iron Age 92:1431 D 25 '13
- Norton roll grinding machine. il Iron Age 92:228-31 Jl 31 '13; Iron Tr R 53:213-6 Jl 31 '13; Mach 19:84-6 Ag '13
- Norton surface grinding machines. il Iron Age 92:441 Ag 28 '13
- Planer-type surface grinding machine. il Ind Eng 13:441-2 O '13
- Pratt & Whitney 22-inch vertical surface grinder. il Iron Age 92:448-9 Ag 28 '13; Mach 20:63-5 S '13
- Rivett no. 6 internal grinder. il Mach 19: 551-2 Mr '13
- Safety as applied to grinding machinery. F. A. Barker. il Am Ind 13:sup 1-4 Je; sup 1-4 Jl; 14:sup 1-4 Ag '13
- 16x72-in. universal grinder. il Am Mach 38: 878 My 22 '13
- Two new plain grinding machines. il diag Iron Age 91:940-1 Ap 17 '13

See also Grinding wheels

Grinding machines (for ores). *See* Crushing machinery

Grinding of spruce for mechanical pulp. J. H. Thickens. il U S Forest Serv Bul 127:1-54 '13

Grinding pans

- Economical fine grinding in pans. M. G. F. Söhnlein. diags Eng & Min J 96:581-3 S 27 '13
- Economical fine grinding in pans. E. E. Wann. il Eng & Min J 96:1183-4 D 20 '13
- Grinding-pans vs. tube mills at the Homestake mine. S. Dak. Met & Chem Eng 11: 105-6 F '13
- New grinding pan. il Eng & Min J 96:792 O 25 '13
- Requirements of small cyanide mills. A. Del Mar. il Eng & Min J 96:769-71 O 25 '13

See also Crushing machinery

Grinding wheels

- Exhaust systems for grinding wheels. Ry Age (Mech ed) 87:305-6 Je '13
- Grinding wheels and their use. W. R. Hedeman. diags Ry Age (Mech ed) 87:663-6 D '13
- Mounting grinding wheels. Ind Eng 13:500 D '13
- Saving money in the grinding room. C. F. Dietz. Ind Eng 13:473-6 N '13
- Tests of grinding wheel protection devices. R. G. Williams. il Iron Age 92:1278-80 D 4 '13; Same. Sci Am S 76:392-3 D 20 '13; Same. il Iron Tr R 53:1045-9 D 11 '13

See also Emery wheels

Groined-arch. *See* Vaulting

Groins

- Foreshore protection by reinforced-concrete groins. plans Eng N 69:668-70 Ap 3 '13
- Reinforced-concrete sea defenses in England. Eng Rec 68:240-1 Ag 30 '13

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Grossman manufacturing co., Brooklyn, N. Y. Grossman plant. plan il Automobile 29:1201 1 25 '13

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Ground waters. *See* Water, Underground

Grounding. *See* Electric distribution

Grouting

- Details of a simple equipment for grouting. il plan Concrete Cem 2:84-5 F '13
- Grouted foundation at the Lahontan dam. H. A. Rands. Eng N 69:1190 Je 5 '13
- Grouting gravel in river beds. Eng N 69:969-70 My 8 '13
- Grouting process for preventing slides on the Panama canal. G. S. Rice. diag Eng N 69: 1181 Je 5 '13
- Grouting the arches of an old stone viaduct. Eng N 69:1184 Je 5 '13
- Methods used on Lahontan dam of the Truckee-Carson project. D. W. Cole. il map Eng Rec 67:340-2 Mr 29 '13; Same. Eng N 69:617-51 Ap 3 '13
- Rock grouting and caisson sinking for Hales Bar dam. il plans Eng N 70:949-56 N 13 '13
- Tests of grouting gravel in river beds. H. H. Cartwright. il diags Eng N 69:979-84 My 8 '13

Growth

Electrified chickens—electricity as a growth stimulator. il Sci Am 109:287 O 11 '13

Guard rails

- Guard rail design. F. W. Rizer. diags Ry Age 54:1006-7 My 16 '13
- Jar-rammed guard rail molds. il Foundry 41: 238-9 Je '13

Guard rails, Concrete

Guard rail—a new concrete product. il plan Concrete Cem 1:83-5 D '12

Guards, Finger. *See* Finger guards

Guggenheim, Daniel

The Guggenheims. Eng & Min J 96:268 Ag 9 '13

Guide posts

Guide post for municipalities. W: A. Braden. il Munic Eng 44:466-8 My '13

Gums and resins

Spruce gum. Sci Am 109:20 Jl 5 '13

Gun. *See* Guns**Gun metal**

Annealing admiralty gun metal. Foundry 41:168-9 Ap '13

Gunboats

Motor gunboats for Colombia. il Int Marine Eng 18:469 N '13

Gunnery

One-man broadside control. Sci Am 108:178 F 22 '13

See also Artillery; Guns; Projectiles

Gunpowder, Smokeless. *See* Smokeless powder

Guns (ordnance)

- Bursting of 13.5-inch and 14-inch guns. E. Bravetta. Sci Am 108:174 F 22 '13
- Military automobile gun. il Sci Am 108:247 Mr 15 '13
- Premature explosion of shells in three-inch field guns. il Sci Am 108:353 Ap 19 '13

See also Artillery

Guns, Naval. *See* Naval guns

Gurney electric elevator company, Honesdale, Pa.

Complete elevator manufacturing plant. il plan Iron Age 92:67-70 Jl 10 '13

Gutenberg, Johannes, 1400?-1468?

Evolution, invention and progress of printing. W. E. Stevens. por Inland Ptr 51:77-9 Ap '13

Gymnasiums

Ventilation of gymnasiums: detailed results at Springfield (Mass.) ventilation plant. J. H. McCurdy. plan Heat & Ven 10:26-33 N '13

Gypsum

Oklahoma gypsum deposits and industry. L. C. Spider. il map Eng & Min J 95:931-3 My 10 '13

Gyro-compass

Engineering applications of the gyroscope. E. A. Sperry. il J Fr Inst 175:463-74 My '13

Gyroscope

Engineering applications of the gyroscope. E. A. Sperry. il J Fr Inst 175:447-82 My '13

Gyroscope in aviation. E. A. Sperry. il Eng M 45:574-7 Jl '13

Gyroscope — *Continued.*

- Gyroscopic mechanism for recording roll and pitch of vessels at sea. *il Sci Am* 109:149 Ag 23 '13
 Gyroscopic stabilizer for ships. E. A. Sperry. *il Sci Am S* 75:203-5 Mr 29 '13
 Making the aeroplane safe by the gyroscopic stabilizer. R. G. Skerrett. *il Sci Am* 108:511-2 Je 7 '13
 Widening field of the gyroscope. *Mach* 19: 683 My '13

H**Haarlem lake, Netherlands**

- Drainage of the Haarlem lake in Holland. *map Eng Rec* 67:559-61 My 17 '13

Hall desulphurizing process. See Ore treatment**Halos in minerals: markings due to radium in rocks and their significance.** J. Joly. *il Sci Am S* 75: 132-5 Mr 1 '13**Hama, Syria**

- Ancient city and its remarkable irrigation system. *Sci Am S* 75:213 Ap 5 '13

Hamburg, Germany

- Port of Hamburg. I. F. Bubendey. *il Eng N* 70:189-91 Ji 31 '13

Rapid transit

- Hamburg elevated and underground railway. *il Sci Am S* 75:20 Ja 11 '13
 Hamburg subway and elevated railway. *il map Elec Ry J* 41:415-9; 42:177-80 Mr 8, Ag 2 '13
 Power equipment of the Hamburg rapid transit system. *il plan Elec Ry J* 42:6-9 Ji 5 '13
 Shops and carhouses of the Hamburg rapid transit system. *il plan Elec Ry J* 41:468-74 Mr 15 '13

Hamilton, Ohio

- Flood-protection plans for Ohio cities. J. W. Hill. *Eng Rec* 68:599 N 29 '13

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- Improved type of power hammer. *il Iron Age* 91:893 Ap 10 '13
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Handling, Mechanical. See Mechanical handling**Handling of coal.** See Coal handling**Handwriting.** See Graphology**Hangars**

- New hangars for military uses. *il Sci Am* 108:69-70 Ja 18 '13

Harbors

- Aspects of transportation: ocean transportation. J. E. Kuhn. *Sci Am S* 76:166-7 S 13 '13
 Bulkhead and pier for the new port of San Diego, Cal. *il plan Eng N* 69:498-500 Mr 13 '13
 Development of port facilities on New Jersey side of New York bay. *Eng Rec* 68:525-6 N 8 '13
 Dredging problems in Wilmington harbor, Delaware. R. R. Raymond. *map Eng N* 69: 928-41 My 8 '13
 Electrical equipment and concrete construction at Auckland harbor. W. Wilson. *il map Eng M* 46:217-36 N '13
 Harbor construction at Kobe and Yokohama, Japan. W. T. Howe. *il plan Eng N* 70:556-7 S 18 '13
 Harbor development at San Pedro, Cal. G. C. Muñoz. *il plan Eng Rec* 67:549-50 My 17 '13
 Harbor development in Seattle. W. L. Kidston. *map plans Eng Rec* 68:221-2 Ag 23 '13
 Hydrographic surveying: Oakland harbor development, California. F. W. Johnson. *il map Eng N* 70:362-4 Ag 21 '13
 Reinforced-concrete boat ways, Rockhaven harbor, N. D. S. R. Morrow. *il Eng N* 70:645 O 2 '13
 Reinforced-concrete wharf with grouted foundations: harbor improvement at Iloilo, P. I. W. T. Howe. *il Eng N* 70:1003-10 N 20 '13
 Toronto, Ont.—harbor and waterfront works. *maps Eng N* 69:1116-9 My 29 '13
See also Buoys; Docks; Ports; Wharves

Hardening

- Eliminating chance in hardening tools. *diags Ry & Eng R* 53:765-6 Ag 9 '13
 Hardening small Novo steel milling cutters. *Mach* 19:501 Mr '13
 Hardening the heads of forge tools. J. Cran. *il diags Mach* 20:304 D '13

Hardening of steel. See Steel, Hardening of**Hardinge mill**

- Hardinge conical mill. H. W. Hardinge. *il diags Am Inst Min E Bul* 75:453-68 Mr '13
 Hardinge mills vs. Chilean mills. R. Franke. *Am Inst Min E Bul* 79:1201-8 Ji '13; Same cond. *Eng & Min J* 96:493-4 S 13 '13; Discussion. *Am Inst Min E Bul* 83:2702-8 N '13
 Ore crushing. H. W. Hardinge. *diags Eng M* 45:598-601 Ji '13
 Pebble lining for Hardinge mills. D. Cole. *Eng & Min J* 96:927 N 15 '13

Hardpan and other soil tests in Chicago: safe loads. J. N. Jensen. *il plan Eng N* 69: 460-3 Mr 6 '13**Hardware**

- Early American hardware: an interesting collection of Dutch-colonial examples. G. W. Nash. *il Arch Rec* 34:329-33 O '13

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Hardware manufacturers' association. See American hardware manufacturers' association**Harriman memorial gold medal**

- Conditions of competition for the E. H. Harriman memorial gold medal. *Ry Age* 55: 708 O 17 '13

Harris, William Laurel, 1870-

- Study in church decoration: the Paulist fathers church in New York city. C. H. Dorr. *il Arch Rec* 33:187-203 Mr '13

Harvard university

- Co-operation in educational effort. *Sci Am* 108:153 F 15 '13

Harvesting machinery

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Haulage

- Trackless-trolley motor for assisting haulage on a steep-grade street at Altona, Germany. J. P. Schroeter. *il Eng N* 70:253 Ag 7 '13

- Traction hauling costs. E. O. Stanley. *il Munic Eng* 45:570 D '13

See also Conveying machinery; Electric haulage; Freight handling; Mine haulage; Motor trucks; Transportation

Headframes

- Concrete headframe with dewatering device. L. O. Kellogg. *diag Eng & Min J* 96:924-5 N 15 '13

- Simple Joplin headframes. *il Eng & Min J* 95: 1096-7 My 31 '13

- Tripod headframe and novel bucket. G. W. Le Veque. *plan Eng & Min J* 95:755 Ap 12 '13

- Types of headframes. H. L. Botsford. *diags Eng & Min J* 96:690-2 O 11 '13

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Heading machines

- Cold-heading. C. L. Lucas and E. W. Duston. *il diags Mach* 19:667-71, 844-9 My. *Jl* '13
 Machine forging. D. T. Hamilton. *il Mach* 19: 707-16 My '13

Headlights

- Basic principles of head-lamp illumination. C. R. Sugg. *Elec W* 62:741-2 O 11 '13

- Considerations in the design of head-lamp light sources. A. R. Dennington. *diags Elec W* 62:742-4 O 11 '13

- Electric versus gas lighting for motorcycles. L. C. Porter. *il Sci Am S* 76:132-3 Ag 30 '13
 New form of headlight. *il Elec Ry J* 41: 552 Mr 22 '13

- Performance of incandescent head-lamps. L. C. Porter. *Elec W* 62:744-5 O 11 '13

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Headlights, Locomotive. See Locomotive headlights

Health boards

Lessons from a never-used sewage-treatment plant, Scotia, N. Y. Eng N 70:123-4 Ag 28 '13

Rules governing the submission of sewerage and water-supply plans to the New Jersey state board of health. Eng N 70:548-50 S 18 '13

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Health laws. *See* Public health laws**Health officers**

Harvard-technology school for health officers. Eng N 70:430 Ag 28 '13

Heat

Heat balance. Power 38:550-1 O 14 '13

Heat balance in steam boilers. L. S. Marks. Power 37:42-7 Ja 14 '13

Heat balance of a producer. J. C. Smallwood. Power 37:897-9 Je 24 '13

Heat balance of the open hearth. S. Cornell. Met & Chem Eng 11:257-66 My '13

Heat, combustion and the generation of steam. C. A. McAllister. Int Marine Eng 18:18-20 Ja '13

Heat lost in flue gases. (Engineers' study course) Power 38:143-4 Jl 22 '13

Principles of combustion; measurement of heat. (Engineers' study course) II Power 37:617 Ap 29 '13

See also Calorimeters and calorimetry; Cold; Combustion; Entropy; Fire; Heating; Liquefaction of gases; Pyrometers and pyrometry; Radiation; Steam; Temperature; Thermodynamics; Thermometers; Waste heat

Heat accumulators

Heat accumulators and their use in exhaust-steam turbine plants. Ind Eng 13:319-21 Jl '13

Heat conductivity

Electrical method for comparing thermal conductivities. W. Eves. Met & Chem Eng 11:503-4 S '13

Flow of heat through furnace walls. Met & Chem Eng 11:574-5 O '13

Heating of cables carrying current. S. Dushman. Am Inst E E Pro 32:164-88 F '13

Internal heating of stator coils. R. B. Williamson. Am Inst E E Pro 32:438-48 F '13

Some aspects of heat flow. Met & Chem Eng 11:572-4 O '13

Theory of penetration of heat in solid materials. L. R. Ingersoll. Eng N 70:866-9 O 30 '13

Thermal properties of concrete. C. L. Norton. Am Soc M E J 35:1016-21 Je '13

Thermodynamics. diags Am Soc M E J 35:187-92 Ja '13

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Heat flow. *See* Heat conductivity**Heat measurement.** *See* Calorimeters and calorimetry; Pyrometers and pyrometry; Temperature—Measurement; Thermo-couples; Thermometers**Heat transmission**

Beaver Falls heat transmission testing station. II diags Heat & Ven 10:45-9 Ag '13

Convection and radiation of heat. Met & Chem Eng 11:278-9 My '13

Heat transmission and entrainment in vacuum evaporators. diag Met & Chem Eng 11:233-8 Je '13

Heat transmission with pipe coils and cast-iron heaters under fan blast conditions. L. C. Soule. plan Power 38:435-7 S 23 '13

Laboratory investigation of temperature rise as a function of atmospheric conditions. C. R. Blanchard and C. T. Anderson. Am Inst E E Pro 32:464-75 F '13

Laws of heat transmission in electrical machinery. I. Langmuir. Am Inst E E Pro 32:390-413 F '13; Same. Eng N 69:1158-62 Je 5 '13

Tests upon the transmission of heat in vacuum evaporators. Met & Chem Eng 11:611-2 N '13

Tests upon the transmission of heat in vacuum evaporators. E. W. Kerr. diags Am Soc M E J 35:1525-58 O '13

Thermal testing plant at the Pennsylvania state college. J. A. Moyer. Eng N 70:695 O 9 '13; Power 38:684-5 N 11 '13

See also Boilers; Evaporation; Heat conductivity; Steam engineering

Heat treatment of steel. *See* Steel, Heat treatment of**Heaters, Feed water.** *See* Feed water heaters**Heating**

Automatic temperature regulation. J. Graham. diags Dom Eng 64:270-2 S 6 '13

Combination steam and hot-water heating system. A. P. Connor. diag Power 38:857-8 D 16 '13

Elements of heating. E. N. Irwin. Power 38:509-10 O 7 '13

Embedded radiation for heating buildings. Eng N 69:473 Mr 6 '13

Fan blast system of factory heating. Heat & Ven 10:37-9 My '13

Fan heating systems for foundries. W. H. Carrier. plans Heat & Ven 10:26-31 Ja '13

Friction and inertia of the heating art. J. G. Dudley. Power 38:924-5 D 30 '13

Heat and ventilation: suggestions for combining heating with air conditioning systems. S. G. Koon. Eng M 44:785-8 F '13

Heating and ventilating Bonwit-Teller bldg., N. Y. city. plans Dom Eng 62:368-72 Mr 29 '13

Heating and ventilating the new Ainsworth school, Portland, Ore. J. Graham. diags Dom Eng 65:130-3 N 1 '13

Heating of Delaware & Hudson shops, Watervliet, N. Y. plan Dom Eng 62:274-5 Mr 8 '13

Hot blast heating for an ice skating rink; Winnipeg horse show amphitheatre. plans Heat & Ven 10:11-7 Ap '13

Hot blast system of heating the D. & H. railroad shops, Watervliet, N. Y. plan Heat & Ven 10:49-50 Mr '13

Hot panel and hot floor border system of heating. H. R. Sankey. plan Heat & Ven 10:11-7 My '13; Same cond. Eng M 45:278-80 My '13

Indirect heating systems with respect to maximum economy and operation. F. L. Busey and W. H. Carrier. Heat & Ven 10:30-7 Mr '13; Same. Power 37:380-2 Mr 18 '13

Mixed heating system. E. T. Binns. plan Power 37:455-6 Ap 1 '13

Modern mechanical equipment for a public institution. II plan Heat & Ven 10:25-43 O '13

Modern practice in heating and ventilation. A. G. King. Dom Eng 63:2-4, 61-4, 182-3, 239-41, 64:37-9, 99-101, 122-4, 273-5; 65:2-4, 241-3, 365-7 Ap 5, 19, My 17, Je 21, Jl 12, 26, Ag 2, S 6, O 4, D 13-20 '13

New terminal post office in New York. L. B. Marks and J. E. Woodwell. II Elec W 61:191-2 Ja 25 '13

19th annual meeting of the American society of heating and ventilating engineers, New York, Jan., 1913. Dom Eng 62:133-9 F 1 '13

19th annual meeting of American society of heating and ventilating engineers, New York, 1913. Power 37:170-1 F 4 '13

19th semi-annual meeting of the American soc. of heating and ventilating engineers, Buffalo, July, 1913. Power 38:180-1 Jl 29 '13

Operating economies in heating large factory buildings. E. L. Wilder. Heat & Ven 10:17-20 Jl '13; Same cond. Power 38:302-3 Ag 26 '13

Proceedings of meeting of American soc. of heating and ventilating engineers, Buffalo, N. Y., July, 1913. Heat & Ven 10:28-37 Ag '13

Question of heat and ventilation. C. L. Hubbard. II Arch Rec 33:444-56; 34:248-56 My, S '13

Room temperature and radiating surface. J. R. Allen. Power 37:379 Mr 18 '13

Heating—Continued.

Successful rules for heating greenhouses. Heat & Ven 10:18-20 Ap '13
Time required to start heating apparatus. Power 38:368-9 S 9 '13
Unusual factory heating installation of the De Laval separator co. E. M. Lloyd. il plan Dom Eng 62:62-4 Ja 18 '13
Warm air heating and ventilating. K. Meier. diags Heat & Ven 10:28-32 S '13

See also Boilers; Car heating; Chimneys; Electric heating; Fuel; Furnaces; Gas heating; Heating from central stations; Heating pipes; Hot water heating; Radiation; Steam heating; Ventilation

Cost

Cost of heating and power-plant apparatus. W. J. Downing. Power 38:721-2 N 18 '13
Expense of operating heating and ventilating plants. Power 38:437-8 S 23 '13
Operating cost heating and ventilating plants. H. M. Hart. Dom Eng 65:133-5 N 1 '13

Tables, calculations, etc.

Calculator for residence heating. il Power 37:379-80 Mr 18 '13
Coal required for heating. Power 37:863-4 Je 17 '13
Comparison of thirteen radiation formulas. A. C. Rogers. Heat & Ven 10:25-7 Ag '13
Graphical solution of heating problems. Power 37:20 Ja 7 '13
Heating a New England house with steam. E. R. Pierce. plans Dom Eng 65:228-30, 264-6 N 22:29 '13
Heating a school. F. L. Busey. Power 37:90 Ja 21 '13
Hot-water direct-heating charts. F. B. Gilbert, jr. Power 37:712-4 My 20 '13
How to figure boiler horse power. Heat & Ven 10:39-40 Jl '13
Methods of estimating radiation and types of radiating surfaces. A. G. King. il Dom Eng 63:61-4 Ap 19 '13
Office practice in estimating heating and ventilation for factories. E. W. Smallman. Heat & Ven 10:33 Ja '13
Pressure losses in piping system. Power 37:456-8 Ap 1 '13
Radiation formula for house heating. C. F. Smith. Heat & Ven 10:21-2 Mr '13
Steam and electric load curves in large buildings. Power 38:18-9 Jl 1 '13
Temperature equivalent of wind velocities. Elec R & W Elec'n 62:108-9 Ja 11 '13
Temperature guarantee and the heat loss factor. G. Chasser. Heat & Ven 10:33-7 N '13
23 rules for computing hot water radiation. Heat & Ven 10:39-40 D '13

Heating, Electric. See Electric heating

Heating, Hot water. See Hot water heating

Heating, Steam. See Steam heating

Heating and ventilating engineers, American society of. See American society of heating and ventilating engineers

Heating from central stations

Central station vapor heating at Cleveland. il diags Dom Eng 63:336-8 Je 21 '13
District heating by steam and hot water. L. B. Lent. Power 37:606-8 Ap 29 '13
District steam heating with high-pressure power in Cleveland. F. W. Ballard. map Power 37:783-6 Je 6 '13
Economics of central station heating. B. T. Gifford. Am Soc M E J 35:1421-5 S '13; Same. Ind Eng 13:450-1 O '13

5th annual convention of National district heating assn., Indianapolis, May, 1913. Elec W 61:1299-1301 Je 14 '13; Power 37:841-3 Je 10 '13

5th annual convention of the National district heating assn., Indianapolis, May, 1913. Heat & Ven 10:29-35 Je '13

Is district heating profitable to the central station? C. J. Davidson. Heat & Ven 10:26-9 Jl '13

National district heating association: 5th national convention, Indianapolis. Dom Eng 63:281-5 Je 7 '13

Ohio public service commission promulgates new rates, rules and regulations for central station hot water heating. Heat & Ven 10:33-4 My '13

Present tendencies in the generation and distribution of heat from a central station. B. T. Gifford. Heat & Ven 10:17-20 My '13

Rates

Double fallacy of flat rates for steam heating. Elec W 62:593 S 20 '13

Meter rate versus flat rate for steam heating service. H. R. Wetherell. Heat & Ven 10:33-5 D '13

Heating pipes

Loss of pressure due to elbows in pipe. diags Dom Eng 64:238-41 Ag 30 '13; Same cond. Power 38:303-4 Ag 26 '13

Pressure losses in piping system. Power 37:456-8 Ap 1 '13

Special Venturi style elbows. F. L. Busey. diags Power 38:369-70 S 9 '13

See also Hot water heating; Steam pipes

Heights. See Altitudes

Helena, Arkansas

Sloughing off of Mississippi levee at Helena. il map Eng N 70:1014-7 N 20 '13

Helium

Appearance of helium and neon in vacuum tubes. J. J. Thomson. Sci Am S 75:150 Mr 8 '13

Birth of the atom: has matter been synthesised. Sci Am S 75:151-5 Mr 8 '13

Has matter been synthesised? J. W. N. Sullivan. Sci Am 108:226 Mr 8 '13

See also Radioactivity

Hemlock trees

Harvesting tan bark. S: J. Record. il Sci Am S 75:408 Je 28 '13

Heredity

Heredity and genius. C. Kassel. Sci Am S 76:155 S 6 '13

Hetch Hetchy valley

Army engineers and Secretary Fisher on Hetch Hetchy and the San Francisco water-supply. Eng N 69:530-2 Mr 13 '13

Erroneous statements regarding the Hetch Hetchy project. Eng Rec 68:282-3 S 13 '13

Heterochromatic photometry. H. E. Ives. Elec W 61:734 Ap 5 '13

Hieroglyphics

Composition of hieroglyphic types. N. J. Werner. il Inland Ptr 50:577-82 Ja '13

High buildings

Completing a belated skyscraper. Eng Rec 68:192 Ag 16 '13

Design of the Woolworth building. S. F. Holtzman. il plans Eng Rec 68:22-4 Jl 5 '13

Getting daylight into a skyscraper. il Arch Rec 33:279 Mr '13

Limiting the height and area of buildings. Eng Rec 68:650-1 D 13 '13

Method of checking economical height of office buildings. D. K. Boyd. Eng Rec 68:589 N 22 '13

Method of checking economical height of office buildings. C. T. Coley. Eng Rec 68:21-2 Jl 5 '13; Same. Stevens Ind 30:341-56 O '13

Method of checking economical height of office buildings. G. W. Wolcott. Eng Rec 68:111 Jl 26 '13

Office building of the Consolidated gas co., New York. il plans Eng N 70:1275-83 D 25 '13

Proposed restrictions for heights of buildings in New York. Eng Rec 68:659-60 D 13 '13

Skyscraper of the future. D: H. Ray. il Sci Am S 75:148-50 Mr 8 '13

Tallest office building in the world: erection of the Woolworth building, New York. il Sci Am 108:224-5 Mr 8 '13

Towers of Manhattan and notes on the Woolworth building. M. Schuyler. il Arch Rec 33:98-122 F '13

See also Steel construction

High-pressure fire service. See Fire service

High-school graduates

High-school graduate and the shop. R. J. Spence. *Am Mach* 38:785-6 My 8 '13

High schools

Agriculture in the high schools. *Sci Am* 108:554 Je 21 '13

School that trains boys for shop work: the William L. Dickinson high school, Jersey City, N. J. E: K. Hammond. *il Mach* 19: 749-53 Je '13

High speed steel. See **Tool steel****Highway engineers association of Missouri**

Sixth annual meeting, St. Louis, 1913. *Eng N* 69:590-1 Mr 20 '13

Highway law

Bridges and culverts for country roads in Wisconsin. A. R. Hirst. *Eng N* 70:729-30 O 9 '13; Same cond. *Eng Rec* 68:378 O 4 '13

Choosing highway superintendents under new Illinois law. W. R. Robinson. *Eng Rec* 68: 376 O 4 '13

Criticism of New York's new highway law. *Eng Rec* 67:462 Ap 26 '13

Iowa road law. *Eng Rec* 68:31, 36 Jl 12 '13

Iowa road law. A. Marston. *Eng N* 70:131-2 Jl 17 '13

New Illinois highway law centralizes authority. *Concrete Cem* 3:136 S '13

Reports on the organization of a highway department for the state of New York. *Eng N* 69:779-80 Ap 17 '13

Road legislation and syndic associations in France. M. de Pulligny. *Concrete Cem* 1: 78 D '12

Rules governing the use of heavy vehicles on highways. in Allegheny co., Pa. *Eng Rec* 68:491 N 1 '13

Rules governing the use of heavy vehicles on highways in New York. *Eng Rec* 68:471-2 O 25 '13

Highways. See **Roads****Hinges**

Early American hardware: an interesting collection of Dutch-colonial examples. G. W. Nash. *il Arch Rec* 34:329-33 O '13

History

History we want to read. *Sci Am* 109:122 Ag 16 '13

Utility of the study of history. E: D: Jones. *Eng M* 44:1-6 O '12

History, Military. See **Military history****Hitches.** See **Slings and hitches****Hoboken, N. J.**

Rehabilitation of Hoboken sewerage system. *il plans Eng Rec* 67:221-2 F 22 '13

Parks

Ornamental use of concrete in playground structures in Hoboken park. *il plans Concrete Cem* 1:41-7 D '12

Hocking valley railway

14th annual report for year ended June 30, 1913. *Ry Age* 55:684-5 O 10 '13

Revenues and expenses. *Ry Age* 55:644-5 O 19 '13

Hogs. See **Swine****Hoisting chains.** See **Chains****Hoisting machinery**

Electric motor clam shell bucket. *il diag Iron Age* 92:135-6 Jl 17 '13; *Iron Tr R* 53: 332 Ag 21 '13

Equalizing load moment on hoisting engines. M. Ehle. *plan Colliery* 33:399 F '13

Experiments on the power consumption of hoisting apparatus. G. von Hanfstengel. *Am Soc M E J* 35:899-3 My '13

Fast hoisting at English collieries. *Colliery* 33:455 Mr '13

Hoisting heavy girders 250-ft. above the street. *il Eng N* 70:275-6 Ag 7 '13

New safety catch for hoists. *il Colliery* 33: 461 Mr '13

Otis automatic furnace hoist installation. *il Iron Tr R* 53:961-2 N 27 '13

Fawling & Harnischfeger electric hoist. *il Ind Eng* 13:438-9 N '13

Portable column hoist. *il Eng & Min J* 96: 645-6 O 4 '13

Power for contractors' hoists. *Concrete Cem* 2:22-3 Ja '13

Some heavy lifting tackle. *il Ry & Eng R* 53:371 Ap 19 '13

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Consolidation of Doherty holding companies. *Elec W* 62:1247-8 D 20 '13

Where holding companies may lead. *Elec W* 62:1195 D 13 '13

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Honduras link of the Pan-American railroad. E: Perry. *il Eng M* 46:333-10 D '13

Hooks

Safety hook for sinking buckets. *il Eng & Min J* 96:1069 D 6 '13

Hookworm disease

Hookworm disease at southern mines. J. W. Pryor. *il Colliery* 33:558-60 My '13

Hopper cars. See **Freight cars****Horse power**

Derivation of S. A. E. horsepower. F. Jehle. *Automobile* 28:991 My 8 '13

Explanation of horsepower. *Automobile* 28: 820 Ap 10 '13

Method of finding horsepower. *Automobile* 29:1106-7 D 11 '13

What is a horsepower? *Power* 37:125-6 Ja 28 '13

What is a horsepower? W: Kent. *Power* 37: 109-11 Ja 28 '13

Horses

Animal haulage in mines. B. S. Randolph. *il Colliery* 34:139-42 O '13

Did the horse exist in America before this continent was discovered by Europeans? E. Trouessart. *Sci Am* S 76:387 D 20 '13

Horse living versus horse power. *Sci Am* 108:574 Je 28 '13

Horses, Educated

Thinking horses: a problem in animal psychology, or in stage trickery? *il Sci Am* 108:454 My 17 '13

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Horace E. Horton as a bridge builder. *Ry & Eng R* 53:981-3 O 18 '13

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Flexible hose that doesn't kink. *il Int Marine Eng* 18:181 Ap '13

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Hose, Air brake. See **Air brake hose****Hose couplings**

National standard hose couplings and hydrant fittings for public fire service. F. M. Griswold. *Am Soc M E J* 35:421-34 Mr '13

Standardization of hose and hydrant connections. *Eng N* 70:289 Ag 14 '13

Standards for hose couplings. *Mach* 19:501 Mr '13

Hospital cars

Hospital car for the Rock Island. *il Ry Age* 55:748-9 O 24 '13

Hospitals

Accounting system for a municipal hospital. D. C. Eggleston. *J Account* 16:366-70 N '13

Cornell colliery hospital. *il plan Colliery* 34: 201-6 N '13

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- Heating and ventilating in Greenpoint hospital, H. L. Alt, plans Dom Eng 64:208-12 Ag 23 '13
- Hospital refrigeration and vacuum cleaning, H. L. Alt, Dom Eng 64:245-6 Ag 30 '13
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- Modern railway hospital and its management, R. O. Woolsey, Ry & Eng R 53:853-4 S 6 '13
- Plumbing in Greenpoint hospital, Brooklyn, Dom Eng 62:216-9 F 22 '13
- Plumbing in Mt. Vernon, New York, hospital, plans Dom Eng 62:302-4 Mr 15 '13
- Question of heat and ventilation, C. L. Hubbard, Arch Rec 34:248-56 S '13
- Service equipment of the Samaritan hospital, Troy, N. Y., C. F. Herington, plans Eng N 50:108-11 J 17 '13
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- Circulation through shunted hot water radiators, W. L. Durand, Power 37:458 Ap 1 '13
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- Connections to circulating pumps in hot water heating, plan Heat & Ven 10:37 F '13
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- Forced circulation of hot water in domestic heating plants, also a brief explanation of the Honeywell system, A. G. King, Dom Eng 65:365-7 D 20 '13
- Heating and ventilating details of the New York general post-office, H. plans Heat & Ven 10:11-20 Mr '13
- Heating and ventilating in Toledo post office, plan Dom Eng 62:184-8 F 15 '13
- Heating large assembly room by hot water, J. Graham, plan Dom Eng 63:260-1 Ap 19 '13
- High-pressure steam heating vs. hot-water by-product plant, I. N. Evans, Power 38:169-72 J 1 29 '13
- Hot-water direct-heating charts, F. B. Gilbert, jr., Power 37:712-4 My 20 '13
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- Ohio public service commission promulgates new rates, rules and regulations for central station hot water heating, Heat & Ven 10:33-1 My '13
- Open tank two-pipe system of hot water heating, A. G. King, diags Dom Eng 64:273-5 S 6 '13
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- Physical action of steam and forced hot-water heating systems, I. N. Evans, Power 38:232-6 Ag 12 '13
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- Shunt system of connecting radiators, I. N. Evans, diag Power 38:507-9 O 7 '13
- Shunt system of connecting radiators, H. A. Kieselbach, Power 38:723-4 N 18 '13
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- 23 rules for computing hot water radiation, Heat & Ven 10:39-40 D '13
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- Hot water supply**
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- Double boiler system for hot water, diags Dom Eng 63:220 My 24 '13
- Hot water service; the principles of heat and circulation, F. W. Tower, Dom Eng 64:179-81 Ag 16 '13
- Hot water supply for four- or five-story office building, diag Dom Eng 65:112 O 25 '13
- Poorly arranged boiler connections, diags Dom Eng 65:72 O 18 '13
- Problem in hot water supply, H. plan Dom Eng 65:374-5 D 26 '13
- Types of hot water heating for domestic use, F. W. Tower, diags Dom Eng 64:242-4 Ag 30 '13
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- Electrical equipment of a modern hotel; artistic and efficient lighting scheme in McAlpin hotel, N. Y., H. Elec W 61:927-30 My 3 '13
- General features of Grove Park Inn at Asheville, N. C., H. Concrete Cem 2:229-30 My '13
- Heating and ventilating the hotel McAlpin, J. Graham, H. Dom Eng 63:5-13 Ap 5 '13
- Hotel as a central-station customer, Elec W 62:432-3 Ag 30 '13
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- Hotel McAlpin heating system, H. Heat & Ven 10:43 Ag '13
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- Labor-saving appliances of the modern great hotel, J. B. Baker, H. Sci Am 109:412-3 N 29 '13
- Mechanical equipment of Stock yards inn, plans Dom Eng 62:32-9 Ja 11 '13

Hotels *Continued.*

- New York's newest hotel: Hotel McAlpin. D: E. Tarn. *il Arch Rec* 33:231-41 Mr '13
 Ritz-Carlton hotel, Philadelphia, Pa. *il Arch & Bldg* 45:68-72 F '13
 Ritz-Carlton hotel, Philadelphia: pictures. *Arch Rec* 34:213-24 S '13
 Ritz-Carlton hotel refrigerating plant, N. Y. plans *Power* 37:495-8 Ap 8 '13
 Shoreham hotel, Washington, D. C. *il Arch & Bldg* 45:73-5 F '13
 Varied uses of electricity in hotel Ohio. Youngstown. *il Elec W* 62:12-6-8 D 13 '13
 Ventilation equipment of Ritz-Carlton hotel. *il plans Dom Eng* 62:155-8 F 8 '13

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- Boston Elevated hours of labor agreement. *Elec Ry J* 12:1234-5 D 13 '13
 Eight-hour versus twelve-hour shifts: economies effected in a steel foundry through shorter hours. R. A. Bull. *Eng M* 44:593-601 Ja '13
 Hearing on Illinois bill limiting hours of labor. *Elec Ry J* 41:554-5 My 16 '13
 National iron and steel labor report: conditions existing in 1910. *Iron Age* 91:954-5 Ap 17 '13
 Recent eight-hour legislation for government work. G: A. King. *Eng Rec* 67:526-8 My 19 '13
 Towermen and hours of service law. Ry & Eng R 53:534-5 J- 7 '13

House cleaning

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- Securing business by a house organ. C: W. Hoyt. *Inland Pte* 51:682-4 Ag '13
 Why some house-organs died. C: R. Lippmann. *Dom Eng* 65:277-8 N 29 '13

Houses. See Architecture, Domestic; Concrete houses; Country houses; Schoolhouses**Houses, Concrete. See Concrete houses****Housing problem**

- Architecture and the housing problem. C. M. Price. *il Arch Rec* 34:249-7 S '13
 Housing problems and restrictions in large cities. *Eng Rec* 67:673 Je 14 '13
 Practical housing development: evolution of the quadruple house idea. *il Arch Rec* 34:46-55 Jl '13
 Solving the housing problem in Paris. *Concrete Cem* 2:267-8 Je '13
 Suburban development. *il Arch Rec* 24:348-53 O 13
 Workmen's dwellings of Krupp works, Germany. *il Iron Age* 92:611 S 18 '13
 Workmen's houses in Germany. plans *Ind Eng* 13:374-6 S '13

See also City planning

Houston, Texas

- Houston's plan of taxation. J. J. Pastoriza. *Munic Eng* 45:235-6 S '13

Hudson & Manhattan railroad

- Report for 1912. *Elec Ry J* 41:736 Ap 19 '13

Hudson Bay railroad

- Hudson bay route. W: B. McPherson. map *Eng M* 45:249-52 My '13

Hudson Bay route

- Perils of navigation on the Hudson Bay route. *Eng* 69:222-3 Ja 30 '13

Hudson river

- Bridges in relation to the Hudson river. G. F. Kunz. *Sci Am* 8 76:342-3 N 29 '13

Humidity

- Air conditioning for textile mills. F: W. Parks. *Ind Eng* 13:397-8 J '13; Same, with discussion. *Am Soc M E J* 35:1036-42 Je '13
 Experiments of humidifying air at the Oliver Wendell Holmes school, Boston, Mass. C: F. Evelevh. plan *Heat & Ven* 19:13-29 O '13
See also Psychrometry

Humphrey pumps

- Humphrey pumps for London water-works. plans *Power* 37:602-4 Ap 29 '13

Humus

- Chemistry of humus, relation to the soil and to the plant. S. L. Jodishi. *hlding J Fr Inst* 176:565-73 N '13
 Formation of leafmold: production of humus. F: V. Colville. *Sci Am* 8 75:386-7 Je 21 '13

Huntington mills

- Huntington mills and their operation. C. T. Rice. *diag Eng & Min J* 96:215-6 Ag 2 '13

Hydrants

- Boston's new high-pressure fire hydrant. *il diag Eng Rec* 67:642-3 Je 7 '13
 National standard hose couplings and hydrant fittings for public fire service. F. M. Griswold. *Am Soc M E J* 35:421-31 Mr '13
 Standard specifications for water-works, hydrants and valves. *Eng N* 70:265-7 Ag 7 '13
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Hydrated lime. See Lime**Hydraulic elevators. See Elevators****Hydraulic engineering**

- Channel- and beach-maintenance problem at Atlantic City. R. R. Raymond. map *Eng N* 70:159-4 Jl 24 '13
 Great hydraulic principles: or how to make engineering structures hold water. G: L. Dillman. *Eng N* 69:1225 Je 12 '13
 Hydraulic power development in New England. *Eng Rec* 67:115 F 1 '13
 Hydroelectric development replacing old power canal system in Paterson, N. J. *il plans Eng Rec* 67:200-2 F 22 '13
 Industrial need of technically trained men. C. W. Larnier. *Sci Am* 109:218 S 13 '13
 St. Lawrence ship channel improvements between Montreal and Quebec. H. C. Plummer. *il map Sci Am* 109:182-3 S 6 '13
 Water power and water supply preliminaries. R. E. Horton. *Eng Rec* 67:80-1 Ja 18 '13
See also Aqueducts; Boring; Bridges—Foundations and piers; Caissons; Canals; Channels; Cofferdams; Culverts; Dams; Locks; Drainage; Dredging; Flood control; Harbors; Hydraulic machinery; Hydraulic mining; Hydroelectric plants; Irrigation; Jetties; Lighthouses; Locks (canals and rivers); Los Angeles aqueduct; Pumping machinery; Pumping stations; Reclamation of land; Reservoirs; Rivers; Sea walls; Spillways; Tide power; Tunnels and tunneling; Subaqueous; Turbines; Water hammer; Water supply; Water supply engineering; Water wheels; Wells; Wharves

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- Hydraulic laboratory for irrigation investigations. Fort Collins, Colo. V. M. Cone. *il plan Eng N* 70:662-5 O 2 '13
 Wheeler condenser and engineering co., Carteret, N. J. P. A. Bancel. *il Eng N* 70:916-8 N 6 '13

Hydraulic machinery

- Design of a hydraulic intensifier. J. B. Varela. *diag Mach* 19:28-30 S '12
 500-ton inverted hydraulic press. *il Iron Tr R* 53:1149 D 25 '13
 Hydraulic bulldozer for heavy forgings. *il Iron Age* 91:423 F 13 '13
 Hydraulic dredging on New York barge canal. E. Low. *il plan Eng N* 69:710-20 Ap 19 '13
 Hydraulic flanging press and boiler construction equipment. *il Sci Am* 8 76:337 N 29 '13
 Hydraulic forcing press of 1,000 tons capacity. *Ind Eng* 13:401-2 S '13
 Making a stone manufacturing press. F. A. Stanley. *il Am Mach* 38:715-8 My 1 '13
 Watson-Stillman car coupler shearing and riveting press. *il Mach* 19:70 S '12
See also Hydraulic engineering; Hydraulic rams; Pumping machinery; Turbines; Water wheels

Hydraulic machinery *Continued.***Testing**

Test of a hydraulic buffer. C. Schwartz. *il* Am Soc M E J 35:937-45 Je '13; Discussion. 35:1258-60 Ag '13

Test of a hydraulic buffer for railroad terminal stations. *il* Eng N 70:526-7 S 11 '13
Wheeler condenser and engineering co., Carteret, N. J., and their hydraulic laboratory. T. A. Bancel. *il* Eng N 70:916-8 N 6 '13

Hydraulic mining

Activity in Colombian placers. Eng & Min J 95:533-4 Mr 8 '13

Fairbanks opencut placer method. *diag* Eng & Min J 96:926 N 15 '13

Hydraulic mining at La Grange mine, Trinity county, Cal. *il* Eng & Min J 95:1005-7 My 17 '13

La Clara hydraulic mine, Colombia. *il* Eng & Min J 96:1114-6 D 13 '13

Riffles for hydraulic mining. P. Pouery. *il* plans Eng & Min J 95:1055-60 My 24 '13

Working anthracite culm piles. *il* Colliery 33: 569-71 My '13

Zinc and lead placer mining. L. L. Wittich. Eng & Min J 95:1140 Je 7 '13

See also Gold dredging

Hydraulic rams

Efficiency of a ram. Sci Am 108:450 My 17 '13

Hydraulic ram and the principle on which it operates. F. W. Tower. Dom Eng 62:336-7 Mr 22 '13

Hydraulic transmission

Hydraulic transmission in railway cars: Hele-Shaw system combined with internal combustion engines. *il* Eng M 46:119-21 O '13

Hydraulic transmission on ships: the Föttinger transmitter. *il* Eng M 46:108-12 O '13

Hydraulic variable speed gear. *il* Sci Am 108: 488 My 31 '13

Tests on a 10,000 horse-power Föttinger transformer: hydraulic gear for marine turbines. A. Gradenwitz. *il* Sci Am 108:536 Je 14 '13

Variable speed hydraulic transmission for motor trucks. *il* Sci Am 109:208 S 13 '13

Waterbury tool co. hydraulic transmission gear. *il* *diag* Iron Age 91:1284-6 My 29 '13

Hydraulics

Flow of liquids through narrow rectangular channels. C. B. Buerger; E. Jonson. Eng N 69:686-7 Ap 3 '13

Hydraulic laboratory for irrigation investigations. Fort Collins, Colo. V. M. Cone. *il* plan Eng N 70:662-5 O 2 '13

Investigation of flow processes in the ascending pipe of the Mammoth pump. K. Hoefer. Am Soc M E J 35:1431-4 S '13

Lifting hot water. F. E. Nickel. Power 38: 577-8 O 21 '13

Metering and recording the flow of fluids. J. W. Ledoux. *il* *diags* Met & Chem Eng 11: 403-7 Jl '13

Water pressure on cylindrical surfaces. *plan* Eng Rec 67:279 Mr 8 '13

See also Hydraulic engineering; Hydraulic machinery; Hydrostatics; Liquids; Stream measurements; Water flow; Water power

Hydroaeroplanes

Aeronautics in Germany. Sci Am S 75:322-3 My 24 '13

Benoist flying boat. *il* Sci Am S 75:156 Mr 8 '13

Big aeroplane and transatlantic flight. Sci Am 108:420 My 3 '13

Crossing the ocean in a flying machine. Sci Am 108:446 My 17 '13

Hydro-aeroplane meet at Monaco. *il* Sci Am 108:402-3 My 3 '13

Hydro-aeroplane meeting at Deauville. Sci Am S 76:218 O 4 '13

Monster hydro-aeroplane. *il* Sci Am 108:432 My 10 '13

New American flying boat. *il* Sci Am 109:458 D 13 '13

Hydrochloric acid

Rational absorption of hydrochloric acid. T. Meyer. *plans* Met & Chem Eng 11:267-72 My '13

Hydroelectric plants

Generation and transmission of hydroelectric power. E. A. Lof. *il* Eng M 44:547-66, 690-713, 903-20; 45:50-70, 196-208, 372-83, 506-11 Ja-Jl '13

Hydro-electric systems. Power 37:894-6 Je 24 '13

See also Electric transmission; Turbines

Alabama

Alabama traction, light and power co., ltd., of Birmingham—hydroelectric station on the Coosa river and steam station at Gadsden. *il* Elec W 62:527-30 S 13 '13

California

Butterfly gates for the San Francisquito power station no. 1, Los Angeles aqueduct. *il* Eng Rec 68:327 S 20 '13

Drum development of Pacific gas & electric company. F. G. Mudgett. *il* Elec W 62:1055-6 N 22 '13

Hydro-electric development in California. J. A. Britton. *il* Sci Am S 76:72-4 Ag 2 '13

Klamath river hydroelectric development. J. C. Boyle. *il* plan Eng Rec 67:637-8 Je 7 '13

Pacific service project: the South Yuba and Bear river hydro-electric development. J. H. Wise. *il* Sci Am S 75:152-3 Mr 8 '13

San Francisquito power station no. 1, Los Angeles aqueduct. *il* plans Eng Rec 68:218-20 Ag 23 '13

South Yuba-Bear river power development. J. P. Jollyman. *il* map Eng Rec 68:573-4 N 22 '13

Spaulding dam and south Yuba power development of the Pacific gas & electric co. H. C. Vensano. *il* map Eng N 70:1163-6 D 11 '13

Canada

Canada's largest generating station at Cedar Rapids. Elec W 62:319-20 Ag 16 '13

Cedar Rapids hydroelectric development: eighteen 10,800 horsepower turbines, receiving St. Lawrence river water. *diags* plan Eng Rec 68:161-4 O 25 '13

Ontario hydroelectric system. Elec W 61:602 Mr 22 '13

Puntledge river hydroelectric power plant used for operation of coal mines at Vancouver island. *il* plan *diags* Eng Rec 68:312-4, 349-51 S 20-27 '13

Puntledge river power development, Vancouver, B. C. *il* map plans Eng N 70:793-801 O 23 '13

Chile

Braden copper co., Rancagua, Chile, hydro-electric development. C. G. Newton. *il* *diags* Eng N 69:1041-6 My 22 '13

Connecticut

Bulls Bridge hydroelectric plant. C. R. Harte. *il* Elec W 61:448 Mr 1 '13; Same. Elec Ry J 41:366-7 Mr 1 '13

Georgia

Tallah Falls, Ga.—hydroelectric development. *il* Elec W 62:1257-63, 1309-16 D 20-27 '13

Idaho

Permit for development of power on Pend d'Oreille river. Eng Rec 68:145-6 Ag 9 '13; Same. Elec W 62:333-4 Ag 16 '13

Thousand Springs (Idaho) power plant. *il* Eng Rec 68:489-90 N 1 '13

India

Tata high-head development: 100,000-volt transmission into Bombay, India. *map* plans Elec W 62:950-5 N 8 '13

Tata hydroelectric development. *map* *diags* Eng Rec 68:529-31 N 8 '13

Iowa

Electric power from the Mississippi river: engineering details of the Keokuk plant with a description of the power house and the turbine units. *il* plans Iron Tr R 52:575-80 Mr 6 '13

Historical review of the Keokuk hydro-electric development. *il* Elec W 62:462-4 S 6 '13

Keokuk (Ia.) hydro-electric development. *il* map Iron Tr R 52:513-7 F 27 '13

Keokuk (Ia.) power plant. Elec W 61:1122 My 31 '13

Hydroelectric plants—Iowa—Continued.

- Keokuk (Ia.) power plant turbines. C. W. Lerner. *il* Iron Age 91:659-64 Mr 13 '13
 Keokuk (Ia.)—world's largest water-power plant. *il* plans Elec W 61:1157-68 My 31 '13
 Opening of the world's greatest power plant at Keokuk. *il* Sci Am 109:212-3 S 13 '13
 Power from the Mississippi river at Keokuk, Ia. *il* plans map Power 38:184-90 Ag 5 '13

Massachusetts

- Deerfield river hydro-electric development. W. O. Rogers. *il* plan Power 37:250-5 F 25 '13
 Power developments on the Deerfield river, Mass. map plan Eng Rec 67:116-8, 153-7, 181-4 F 1-15 '13

Mexico

- Lluvia de Oro hydro-electric plant and water system, Chihuahua, Mex. H. R. Conklin. *il* Eng & Min J 95:597-8 Mr 22 '13

Michigan

- Marquette (Mich.) light and power commission 24th annual report. Elec W 61:1133-4 My 31 '13
 Twin Falls hydroelectric development. G. C. Newton. *il* plan Eng Rec 67:589-4, 611-4 My 24-31 '13

Minnesota

- Coon Creek development on the Mississippi near Minneapolis. *il* Elec W 62:1094-5 N 29 '13

Missouri

- White river hydroelectric development. *il* Elec W 61:930-1 My 3 '13
 White river hydroelectric plant: first of a series designed for full development of the potential power of the stream. *il* diags Eng Rec 68:135-7 Ag 2 '13

Montana

- Montana hydro-electric development. M. Hehgen. *il* Am Inst Min E Bul 80:1907-33 Ag '13

New Jersey

- Hydroelectric development replacing old power canal system in Paterson, N. J. *il* plans Eng Rec 67:200-2 F 22 '13

New York

- New York bills for state hydroelectric schemes. Elec W 61:555-7 Mr 15 '13
 New York hydroelectric development. R. P. Bolton. Elec W 61:786-7 Ap 12 '13
 New York hydroelectric plans. A. Williams. Elec W 61:711-2 Ap 5 '13
 New York hydroelectric plans, second N. E. L. A. analysis. Elec W 61:659-60 Mr 29 '13
 New York Murtaugh hydroelectric bill before the state legislature. Elec W 61:600-1 Mr 22 '13
 New York state hydroelectric scheme. maps Elec W 61:33-6 Ja 4 '13
 New York state hydroelectric scheme. Eng Rec 67:394 Ap 12 '13
 Niagara falls hydroelectric developments. A. F. Ganz. Stevens Ind 30:79-92 Ap '13

North Carolina

- Electrical equipment of a North Carolina mountain resort at Lake Toxaway. H. M. Friend, jr. *il* Elec W 61:827-8 Ap 19 '13
 Whitney, N. C. development abandoned by Southern aluminum company. Elec W 61:551-5 Mr 15 '13

Norway

- Elverum, Norway, hydroelectric development. *il* diags Eng Rec 68:583-5 N 22 '13
 Samnanger hydroelectric plant; high-head development built by city of Bergen, Norway. *il* plan Eng Rec 67:329-31 Mr 22 '13

Ohio

- Auglaize river hydroelectric station. *il* plan Elec W 62:891-4 N 1 '13

Oregon

- Bull Run hydroelectric plant. C. E. Hickok. *il* Eng Rec 67:70-2 Ja 18 '13
 Condit plant of the Northwestern electric co., Portland, Ore.; 13½ ft. wood-stave pipe. *il* plans Eng N 70:685-7 O 9 '13

- Eugene, Ore. municipal power plant. *il* Elec W 61:1033-6 My 17 '13
 Mount Hood hydroelectric developments; electric features. W. P. Brereton and R. H. Mulock. *il* plans Elec W 61:667-71 Mr 29 '13

- Mount Hood hydroelectric developments; hydraulic features. W. P. Brereton and R. H. Mulock. *il* Elec W 61:617-9 Mr 22 '13
 White Salmon river hydroelectric plant: system of Northwestern electric co. to supply electricity and steam heat in Portland, Ore. W. B. Foshay. *il* Elec W 62:275-7 Ag 9 '13
 White Salmon river power development. R. M. Overstreet. *il* plans Eng Rec 68:396-8 O 11 '13

Pennsylvania

- McCall's Ferry hydro-electric plant. C. H. Bromley. *il* Power 37:656-61 My 13 '13
 Raystown hydroelectric plant near Huntingdon, Pa. *il* plans Eng Rec 67:712-4 Je 28 '13

Sweden

- Hydroelectric plant at Trollhättan, Sweden. *il* Elec W 61:89-94 Ja 11 '13
 International Scandinavian transmission system; comparative costs of generating equipment and proposed 200-mile line from Trollhättan to Copenhagen. Elec W 61:294-7 F 8 '13
 Mockfjärd (Sweden) hydroelectric development. *il* plan Eng Rec 67:516-8 My 10 '13
 Mockfjärd, Vesterdalsfjälven power co. subterranean Swedish generating plant. *il* plans Elec W 61:979-84 My 10 '13
 Notable Swedish enterprise at Trollhättan. Elec W 61:78-9 Ja 11 '13
 Trollhättan, Sweden—a 200-mile, 90,000-volt, direct-current power transmission project in Sweden and Denmark. map Eng N 69: 617-8 Mr 27 '13

Switzerland

- Swiss hydroelectric developments. *il* Elec W 61:771-5 Ap 12 '13; *il* Eng Rec 67:476-9 Ap 26 '13
 Swiss hydroelectric plant development at Bisaschina. *il* diag Elec W 62: 73-5 Ji 12 '13
 Swiss hydro-electric station at Arniberg using water under 2800-ft. head. plans Eng N 70:52-3 Ji 10 '13

Tennessee

- Chattanooga—nine-million dollar hydro-electric plant. *il* Sci Am S 76:388 D 20 '13
 Hales Bar station of Chattanooga & Tennessee river power company. *il* Elec W 62: 997-1000 N 15 '13
 Hale's Bar works completion. *il* plan Power 38:774-7 D 2 '13

United States

- Harnessing the public water power. C. J. Blanchard. *il* Sci Am 108:310-1 Ap 5 '13

Utah

- Mill Creek automatic pumping station increasing output of a Utah hydroelectric plant. M. B. Lott. *il* plans Elec W 61:563-7 Mr 15 '13; Same. Eng Rec 67:288-90 Mr 15 '13

Vermont

- Hartland, Vt.—hydroelectric plant for sawmill use. M. A. Hicks. *il* Elec W 61:1037-9 My 17 '13

- Windsor, Vt.—central station practice. *il* Elec W 62:1153-9 D 6 '13

Virginia

- Appalachian hydro-electric development, New River, Va. W. O. Rogers. *il* plan Power 37: 402-8 Mr 25 '13

- Appalachian power company—test of the 6000-horsepower turbines. H. P. Rust. *il* plan Eng Rec 67:357-8 Mr 29 '13

Washington

- Tacoma's Nisqually river development. R. H. Richards. *il* Elec W 62:227-9 Ag 2 '13
 Water power station on White Salmon river, Washington. diag Iron Tr 52:1233 My 29 '13

Hydroelectric plants *Continued.***Wisconsin**

Cornell, Wis.—Brunet falls water-power and paper-mill development on the Chippewa river, il plan Eng Rec 67:368-71 Ap 5 '13
 Prairie du Sac (Wis.) power plant construction work, il Eng Rec 67:603-4 My 31 '13

Hydroelectric power

Investigation of prospective hydroelectric power service for reliability, H. S. Knowlton, Eng N 69:1093-5 My 22 '13

Hydro-electric power commission of Ontario

Annual report, 1912, Elec W 61:185 Ja 25 '13

Hydrogen

Manufacture of hydrogen from water gas, H. Brot, diags Sci Am S 76:214-6 O 18 '13
 Manufacture of hydrogen gas for spherical balloons; portable plants for military use, il Sci Am 109:152 D 13 '13

Hydrogen peroxide

Peroxides and per-salts, A. S. Neumark, il Sci Am S 75:182-3 Mr 22 '13

Hydrographic surveying

Current observations with a stadia float, B. L. G. Rees, plan Eng N 69:368-70 F 20 '13
 Hydrographic surveying; Oakland harbor development, California, F. W. Johnson, il map Eng N 79:362-4 Ag 21 '13
 Irrigation and the need for hydrographic surveys, Eng Rec 67:566 My 24 '13

Hydrography

See also Harbors

Hydrometallurgy

Copper leaching, Eng & Min J 96:962-3 N 22 '13
 Hydrometallurgy, R. Chauvenet, Met & Chem Eng 11:486-91 S '13
 Hydrometallurgy and chlorination; answer to Dr. Chauvenet, J. L. Malm, Met & Chem Eng 11:669 D '13
 Hydrometallurgy—joys of its theory, woes of its practice, W. F. Bleeker, Met & Chem Eng 11:538-9 O '13

Leaching of copper ores, Eng & Min J 96:651 O 4 '13

Leaching Shannon copper ores, F. S. Schimkerka, Eng & Min J 96:1197-10 D 13 '13

See also Slater lixiviation process

Hydroplane boats

Curious exhibits at the 1913 motor boat show in New York city, Eng N 69:474 Mr 6 '13

Curious French gliding boat, il Sci Am 109:140 Ag 23 '13

Hydrostatics

Hydrostatic pressure on molds and cores, R. R. McGowan, diags Foundry 41:229-32 Je '13

See also Fluids; Hydraulics

Hygiene

Cost of success, Sci Am S 75:291 My 10 '13

See also Air pollution; Dust removal; Factory sanitation; Humidity; Mine sanitation; Occupations—Diseases and hygiene; Tropical hygiene; Water pollution

Hygiene, Industrial

Economy of a works hospital system, Sci Am S 75:356 Je 7 '13

Motion study, Eng M 45:112-4 Je '13

Occupational fatigue, Sci Am S 75:410-1 Je 28 '13

Successful factory drinking water system, W. J. Bitterlick, plan Ind Eng 13:288-9 S '13

See also Factory sanitation; Mine sanitation; Occupations—Diseases and hygiene; Safety devices and measures

Hygiene, Military. *See* Military hygiene**Hygiene, Tropical.** *See* Tropical hygiene**Hygiene and demography, International congress on.** *See* International congress on hygiene and demography**Hygrometers**

Poxboro recording hygrometer, il diag Ind Eng 13:525 D '13

Hyperbolic functions. *See* Functions, Exponential**Hypochlorites**

Chlorinating plants, Croton water supply, T. D. L. Coffin, plans Eng N 69:419-22 F 27 '13

Chlorine or hypochlorites for sterilizing water, Munic Eng 44:145-6 F '13

Elimination of taste in water treated with calcium hypochlorite, A. Lederer and F. Bachmann, Eng N 69:936-7 My 8 '13

Emergency installation of a sterilization plant in England, il Eng Rec 67:525 My 10 '13

Hypochlorite disinfection of sewage at Providence, R. I., Eng N 70:1292 D 25 '13

Preventing aftergrowths in hypochlorite treatment, R. Freas, Eng Rec 67:249 Mr 1 '13

Temporary hypochlorite plant for treating the sewage of Norristown, Pa. S. C. Corson, plan Eng N 69:558 Mr 20 '13

Hysteresis

Elastic hysteresis, E. B. Smith, Eng Rec 67:561-2 My 17 '13

Hysteresis and eddy-current losses in transmission towers, Elec W 62:1108-9 N 29 '13

Researches in magnetic hysteresis, Elec W 61:331 F 15 '13

See also Electric measurement

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Ice

Bacteriology of ice, E. O. Jordan, Sci Am S 75:199 Mr 29 '13

Causes for variation in quality of distilled water ice, P. Neff, Power 38:132-3 Jl 22 '13; Same, Sci Am S 76:107 Ag 16 '13

Ice and salt mixtures, G. H. Crawford, jr., Power 37:825-6 Je 10 '13

Latent heat of fusion of ice, Power 38:608 O 28 '13

See also Cold storage; Glaciers; Ice caves; Ice houses; Ice saw; Ice storage; Icebergs; Refrigeration and refrigerating machinery

Manufacture

Cause of decreased output in ice plants, P. Neff, Power 37:902 Je 24 '13

Central-station ice-making, il Elec R & W Elec'n 62:17-22 Ja 4 '13

Central-station ice making, Elec W 61:1230-1 Je 7 '13

Clifton Forge, Va., artificial ice and central-station service, Elec W 61:1261 Je 7 '13

Combination steam-electric ice-making plant in Chicago, il Elec W 61:454-6 Mr 1 '13

Comparative costs of motive power in ice manufacturing, Elec W 62:755 O 11 '13

Comparative costs of operating ice factory by oil engines and electric motors, C. E. Rose, il Elec W 62:1225-6 D 13 '13

Comparative installation and operating costs of a combined ice-manufacturing and cold-storage plant, R. H. Tait and L. C. Nordmeyer, Power 38:606-8 O 28 '13

Cost of ice making in small plants, R. P. Kehoe, Sci Am S 75:135 Mr 1 '13

Cost of manufacture in distilled-water ice plants, P. Neff, Power 38:756-8 N 25 '13

Factor in ice-plant efficiency, P. Neff, Power 38:270 Ag 19 '13

Ice-making and refrigeration from the central station viewpoint, Elec W 62:65-6 O 4 '13

Ice-making operating practice at Durham, N. C., Elec W 61:685 Mr 29 '13

Municipal ice-electric plant at Weatherford, Oklahoma, il plan Elec W 62:430 Ag 30 '13

Notes on various ice plants, Elec W 61:452-3 Mr 1 '13

Operation of a turbo-electric ice factory, Los Angeles, Elec W 61:892 Ap 26 '13

Refrigeration a desirable load for central stations, Power 37:900-2 Je 24 '13

Rehabilitation of combination electric and ice-making plants at Hampton, Va., Elec W 61:997-8 My 10 '13

Relation of cold storage to plant capacity, Power 38:894-5 D 23 '13

Ice boats, Motor. See **Motor ice boats**

Ice caves

Largest ice cave in the world. *il Sci Am* 109:267 O 4 '13

Ice coating on overhead conductors. W: R: King. *il Eng Rec* 67:271-2 Mr 8 '13

Ice-cream plants

Electrically operated factory of the Lifter ice cream co., Philadelphia. *il Elec W* 61:120-1 F 22 '13

Output of Banner creamery co., St. Louis ice-cream plant to be increased with same electrical equipment. *Elec W* 61:109 My 24 '13

Ice houses

Concrete ice house for the Northern Pacific Ry. at Pasco, Wash. plans Ry & Eng R 53:905-6 S 27 '13

Construction of small concrete ice-houses. *il Concrete Cem* 3:36-7 Jl '13

See also **Ice storage**

Ice machinery. See **Ice—Manufacture**

Ice making. See **Ice—Manufacture**

Ice saw

Mechanical ice saw. *il Sci Am S* 75:173 Mr 15 '13

Ice storage

Storage and handling of ice. Ry Age 51:123-40 My 23 '13

Icebergs

Autograph of an iceberg. L. E. Browne. *il Sci Am* 109:490 D 27 '13

Ice detection at sea: apparatus indicating temperature changes in sea water. *Eng M* 46:281-3 N '13

Iceberg indicator. *il Sci Am* 108:584 Je 28 '13

Perils of navigation on the Hudson Bay route. *Eng N* 69:222-3 Ja 30 '13

Truth about the iceberg peril. *Sci Am* 109:106 Ag 9 '13

Igneous rocks. See **Rocks, Igneous**

Ignition. See **Automobile engines—Ignition devices**; **Gas and oil engines—Ignition**

Illinois & Michigan canal

Rehabilitation of the Illinois & Michigan canal. *Eng Rec* 67:92 Ja 25 '13

Illinois Central railroad

Annual report for year ended June 30, 1913. *Eng Age* 55:589-90 S 26 '13

Apprenticeship in the Illinois Central. *Am Eng* 87:249-52 My '13

Mechanical terminal. W. Doud. *il plans Ry Age* (Mech ed) 87:353-61 Jl '13

Mechanical terminal at Centralia. *il plans Ry Age* 51:1597-1601 Je 27 '13

Revenues and expenses. map Ry Age 55:551-2 S 26 '13

Illinois electric railways association

Annual meeting, Chicago, March, 1913. *Elec Ry J* 41:508-9 Mr 15 '13

Illinois electrical contractors' association

Midwinter convention, Peoria, 1913. *Elec W* 61:180-1 Ja 25 '13

Semi-annual convention, Chicago, June, 1913. *Elec W* 61:1403-4 Je 28 '13

Illinois manufacturers' association

Annual meeting at the Congress hotel, Chicago, Dec. 3, 1913. *Iron Age* 92:1356-7 D 11 '13

Illinois master plumbers' association

21st annual convention, Springfield, Jan., 1913. *il Dom Eng* 62:167-72 F 8 '13

Illinois northern utilities company

Commercial development under group control. *il Elec W* 61:1255-9 Je 7 '13

Illinois society of engineers and surveyors

Report of 28th annual meeting, 1913. *Eng Rec* 67:sup 39-40 F 1 '13

28th annual convention, 1913. *Eng N* 69:250-1 F 6 '13

Illinois state electric association

Annual meeting at Quincy, Sept., 1913. *Elec W* 62:678-9 O 4 '13

Illinois traction system

Illinois traction system's St. Louis express and freight traffic methods. *il map plan Elec Ry J* 41:282-7 F 15 '13

Illinois, University

Large arch-truss drill-hall for university of Illinois. *il plans Eng N* 70:1182-5 D 11 '13

Locomotive laboratory at the University of Illinois. E: C. Schmidt. *il diag Ry Age* 51:752-4 Mr 28 '13

Illinois water supply association

Fifth annual meeting, Univ. of Ill., 1913. *Eng N* 69:660-3 Ap 3 '13

Illuminating engineering society

Annual meeting, 1913; list of officers. *Elec W* 61:129 Ja 18 '13

Pittsburgh convention, Sept., 1913. *Elec W* 62:676-8 O 1 '13

7th annual convention, Pittsburgh, Pa., Sept., 1913. *Elec W* 62:619-21 S 27 '13

Illumination. See **Lighting**

Illumination commission, International. See **International illumination commission**

Illumination of books and manuscripts

Palette of the illuminator from the seventh to the end of the fifteenth century. *Sci Am S* 75:77 F 1 '13

Illusions, Optical. See **Optical illusions**

Iloilo, Philippine islands

Reinforced-concrete wharf. W. T. Howe. *il Eng N* 70:1003-10 N 20 '13

Imhoff tank

Design of Imhoff sewage plants. L. C. Frank. *diag Eng Rec* 68:452-3, 501-2, 519-21 O 25-N 8 '13

Distribution of sewage sludge in settling tanks. C. Hoopes. *Eng Rec* 68:429-30 O 18 '13

Fresh sludge and decomposed sludge: comparative analyses and discussion of sludge-utilization possibilities. H. Bach and L. C. Frank. *Eng Rec* 68:331-3 S 20 '13

Imhoff sewage tank for Torrance, Cal. R. Bennett. plans *Eng N* 70:1132-3 D 4 '13

Imhoff tanks. *il plan Munic Eng* 44:399-404 My '13

Principles of the Imhoff tank. H: N. Ogden. *Eng M* 44:958-60 Mr '13

Sewage purification. F. H. Tibbets. *il diag Munic Eng* 41:512-6 Je '13

Sewage-treatment studies at Akron, Ohio. *il plans Eng Rec* 67:387-90 Ap 5 '13

Sewage treatment works at Fitchburg, Mass. *diag Eng Rec* 67:633-5 Je 7 '13

Why not sink Imhoff tanks as open caissons? E. B. Van de Greyn. *diag Eng Rec* 68:432 O 18 '13

Imperator (steamship)

Greatest steamer in the world: Imperator's marvels. *il Sci Am* 108:562-3 Je 21 '13

Hamburg-American liner Imperator. *il Int Marine Eng* 18:216-7 My '13

Imperator: details of the equipment. *il Eng M* 44:107-9 O '12

Life boats on the Imperator. *il Int Marine Eng* 18:364 Ag '13

Maiden voyage of the Imperator. J. R. Walker. *Sci Am* 108:578 Je 28 '13

Power aboard the Imperator. *il Power* 38:50-2 Jl 8 '13

S. S. Imperator of the Hamburg-American line. *il Eng N* 70:49-50 Jl 10 '13

Incandescent lamps. See **Electric lamps, Incandescent**

Incinerators. See **Refuse destructors**

Inclined plane. See **Mountain railroads**

Income

Income statements for institutions. W: M. Cole. *J Account* 15:79-89 F '13

Study of incomes of technically trained men. D: E. Rice. *Sci Am* 109:116 Ag 9 '13

See also **Wages**

Income tax

Collection of the income tax. *Eng & Min J* 96:811 N 1 '13

Federal income tax. *J Account* 15:58-61 Ja '13

Income tax—Continued.

- Federal income tax law. L. T. Hixson. Elec Ry J 42:1278-80 D 20 '13
 Federal income tax law as applicable to electric railroad corporations. H. B. Cavanaugh. Elec Ry J 42:1277-8 D 20 '13
 Income tax. J Account 15:185-7 Mr '13
 Income tax: its origin and application. L. Nissen. Am Ind 13:20 My '13
 Income tax law. J Account 16:381-407 N '13
 Income tax problem. J Account 15:467-8 Je '13
 New income tax. Eng & Min J 96:817-8 N 1 '13
 Proposed tax on incomes. J Account 15:351-4 My '13
 Rulings of treasury department. J Account 16:168-87 D '13

Independence hall. See Philadelphia—Public buildings

Indexes

Indexes in scientific books. Sci Am 108:192 Mr 1 '13

See also Card indexes; Indexing; Indexing machines; Periodicals—Indexes

Indexing

Methods of increasing the use of technical literature. L. B. Krause. Eng Rec 67:544-5 My 17 '13

See also Files and filing (documents)

Indexing machines

Gratuating machine of novel construction. il diag Mach 19:11 S '12

India**Commerce**

India and its trade possibilities. J. Sevestre. Am Ind 13:31-5 Ja; 29-30 F; 21-2 Mr '13

Industries and resources

True sandalwood of India. Sci Am 108:558 Je 21 '13

India paper. See Paper

India rubber. See Rubber

Indiana**Law**

Indiana public utility law. Elec W 61:557-9 Mr 15 '13

Indiana public utility measure. Elec Ry J 41:515-6 Mr 15 '13

Indiana electric light association

Annual convention, Indianapolis, Sept., 1913. Elec W 62:679-82 O 4 '13

Indiana engineering society

33d annual convention, 1913. Eng Rec 67:sup 42 F 1 '13

33d annual meeting, 1913. Eng N 69:280-1 F 6 '13

Indiana sanitary and water-supply association

Sixth annual meeting, Indianapolis, Feb., 1913. Eng Rec 67:sup 40-1 Mr 8 '13

Indiana state association of master plumbers

20th annual convention at Indianapolis, Mar., 1913. Dom Eng 62:246-56 Mr 22 '13

Indianapolis, Indiana**Flood, 1913**

Damage to structures. D. V. Moore. il map Eng N 69:870-5 Ap 24 '13

Flood at Indianapolis. D. V. Moore. il map Eng N 69:803-6 Ap 17 '13

Industries

Indianapolis, a city where pulling together has brought results. L. V. Spencer. il Automobile 28:1089-92 My 29 '13

Indianapolis switch & frog company

Manufacture of switches and frogs. il Ry & Eng R 53:777-9 Ag 16 '13

Indianapolis traction & terminal company

Indianapolis differences placed before commission. Elec Ry J 42:1149-50, 1202-3, 1254, 1302-3, 1348 N 29-D 27 '13

Settlement of Indianapolis strike. Elec Ry J 42:1059-61 N 15 '13

Violence in Indianapolis strike. il Elec Ry J 42:1018-21 N 8 '13

Indians of North America**Antiquities**

Prehistoric dwelling in Nebraska: a cannibal charnel house unearthed. R. F. Gilder. il Sci Am S 76:220 O 4 '13

Industries

How the Indians harvest wild rice. Sci Am 108:365 Ap 19 '13

Indicator diagrams

Diagram characteristics. B. Leinweber. Am Soc M E J 35:1051-2 Je '13

Indicators

Automatic indicator for drag classifiers. D. F. Irvin. diag Eng & Min J 95:663-4 Mr 29 '13

Boiler-efficiency indicator. diag Eng & Min J 96:454 S 6 '13

Inaccuracies of indicators. J. G. Stewart. diags Power 37:851-3 Je 17 '13

Indicating the compressor. P. Neff. diag Power 38:540-2 O 14 '13

Indicator cards and horsepower of steam engines. C. A. McAllister. Int Marine Eng 18:530-3 D '13

Indicators for spray carburetors. C. Bergman. diags Am Soc M E J 35:327-31 F '13

Load indicator for boiler rooms. il Elec W 62:807-8 O 18 '13

Locomotive indicating apparatus. H. R. Stafford. plans Ry & Eng R 53:32-5 Ja 11 '13

Long-distance water-level indicator. A. V. Youens. diag Power 38:888-90 D 23 '13

Maihak indicator and Boettcher efficiency indicator. il Power 38:427 S 23 '13

O'Kill is a simple pressure indicator. W. C. Marshall. il diag Automobile 28:1116-8 My 29 '13

Stewart's experiments on indicators. J. C. Smallwood. Power 37:914-5 Je 24 '13

Induction coils

See also Condensers (electricity); Electric transformers

Induction furnace. See Electric furnaces

Induction motors. See Electric motors

Inductive interference. See Electric lines

Industrial accidents. See Accidents, Industrial

Industrial alcohol. See Alcohol, Denatured

Industrial arts

See Agriculture; Architecture; Blacksmithing; Building; Business; Chemistry; Technical; Electric engineering; Engineering; Engraving; Factories; Foundry practice; Glass manufacture; Industrial education; Industry; Inventions; Machine shop practice; Machine shops; Machinery; Manufactures; Masonry; Mechanical engineering; Metallurgy; Mills and millwork; Painting; Structural; Plumbing; Pottery; Printing; Shipbuilding; Tanning; Technical education; Textile industry and fabrics; Tools; Turning; Waste products; Woodwork

Industrial betterment

American electric railway association: report of committee on welfare of employees. Elec Ry J 42:812-3 O 16 '13

Attractive yards of the Bethlehem steel co. il Iron Tr R 52:461-7 F 20 '13

Having the men with you. A. T. Morey. Am Ind 13:224-4 Ja '13

Human element in industry. W. Talbot. Iron Age 91:366-9, 418-20 F 6-13 '13

Need of a new official in certain manufacturing plants. H. C. Spaulding. Eng N 70:35-6 J1 3 '13

Practical work in industrial advancement. Am Ind 13:12-5 J1 '13

Psychology of management. L. M. Gilbreth. Ind Eng 13:213-7 My '13

Solving the problem of "human engineering." F. H. Rindge, Jr. Eng N 70:362-3 N 13 '13

Workmen's houses in Germany. plans Ind Eng 13:374-6 S '13

See also Bonus system; Cooperation; Efficiency, Industrial; Hours of labor; Housing problem; Industrial education; Labor laws; Pensions; Profit sharing; Safety devices; Welfare work in industry; Workmen's compensation

- Industrial buildings, Modern.** *il Ind Eng* 13: 193-6 My '13
- Industrial cities.** See Torrance, California
- Industrial commission.** See United States commission on industrial relations
- Industrial education**
 Direction of vocational education. H. E. Miles. *Am Ind* 14:21 N '13
 Fundamental problems of industrial education. J. H. Leete. *Am Ind* 13:26-7 Je '13
 Indiana commission is disappointing. A. A. Snowden. *Am Ind* 13:22-3 F '13
 Industrial education. *Eng Rec* 67:3 Ja '4 '13
 Industrial education in Berne, Switzerland. F. P. McKibben. *Eng Rec* 68:164-5 Ag 9 '13
 Industrial education in Switzerland. *Ind Eng* 13:434 O '13
 Industrial education needed for efficiency of state and individual. L. Bird. *Am Ind* 13: 26-7 My '13
 Practical steps in industrial education. H. E. Miles. *Am Ind* 13:27 Je '13
 Psychology of management; teaching under scientific management. L. M. Gilbreth. *Ind Eng* 13:18-23, 66-70 Ja-F '13
 Report by the Educational committee of the American institute of electrical engineers. *Am Inst E E Pro* 32:1496-39 Je '13; Discussion. 32:2254-65 D '13
 School that trains boys for shop work: the William L. Dickinson high school, Jersey City. N. J. E. K. Hammond. *il Mach* 19:749-53 Je '13
 Trade education, from engineer's viewpoint. F. J. Trinder. *Am Soc M E J* 979-82 Je '13
 See also Apprentices; Corporation schools; Engineering education; Industrial fellowships; Technical education
- Industrial efficiency.** See Efficiency, Industrial
- Industrial fellowships**
 Industrial fellowships. *Eng Rec* 67:511 My 19 '13
 Industrial fellowships: five years of an educational industrial experiment. R. K. Duncan. *J Fr Inst* 175:43-57 Ja '13
- Industrial hygiene.** See Hygiene, Industrial; Occupations—Diseases and hygiene
- Industrial laws and legislation**
 Industrial legislation in the 62nd Congress. *Am Ind* 13:14-6 Ap '13
 Week in Congress. *Ry & Eng R* 53:363 Ap 19 '13
 See also Labor laws
- Industrial management.** See Scientific management
- Industrial plants.** See Factories; Machine shops
- Industrial railroads.** See Railroads, Industrial
- Industrial research.** See Scientific research
- Industrial service movement**
 Solving the problem of "human engineering." F. H. Rindge, jr. *Eng N* 70:962-3 N 13 '13
- Industries.** See Industry; also names of countries and states, subhead Industries and resources, and names of cities, subhead Industries
- Industries, Electric.** See Electric industries
- Industry**
 Growth of modern industrialism. E. C. Eckel. *Eng M* 45:321-33 Je '13
 How the Belgian iron industry maintains itself under international competition. *Eng N* 70:717-8 O 9 '13
 See also Efficiency, Industrial; Government regulation of industry; Industrial laws; Labor and laboring classes
- Inertia, Moments of.** See Moments of inertia
- Infant mortality**
 Prevention of disease versus cost of living. T. F. Harrington. *Sci Am S* 75:403 Je 28 '13
- Infantile paralysis**
 Stable fly as the carrier of infantile paralysis. C. T. Brues. *il Sci Am S* 75:117-8 F 22 '13
- Infectious diseases**
 Bacteriology and your health: serums and vaccines in the diagnosis, treatment and prevention of disease. C. F. Bolduan. *il Sci Am* 108:540-1 Je 14 '13
 See also Bacteriology; Cholera, Asiatic; Flies as carriers of contagion; Infantile paralysis; Leprosy; Sleeping sickness; Typhoid fever
- Inflammable liquids**
 System for storing and handling inflammable liquids. *il Eng N* 70:1911 N 20 '13
- Ingots, Steel.** See Steel ingots
- Injectors**
 Repairing injectors. C. Markel. *Am Eng* 87: 243-1 My '13
- Injunctions**
 Anti-injunction bill in New Jersey. J. A. Emery. *Am Ind* 13:9-11 Ap '13
- Injuries.** See Personal injuries
- Injuries from electricity.** See Electricity, Injuries from
- Ink**
 Buying ink for efficiency. B. Daniels. *Inland Ptr* 51:110 Ap '13
 Mixing of inks. *Inland Ptr* 50:727 F '13
 Relations of paper, type and ink. E. M. Keating. *il Inland Ptr* 50:683-7 F '13
- Inland portland cement company**
 Plant at Metaline Falls, Wash. M. W. Krejci. *il plans Am Inst Min E* 1341 79:1305-14 Jl '13
- Insects**
 Catalepsy in insects. P. Collins. *il Sci Am* 109:459 D 13 '13
 How insects fight: stings, mandibles, horns and poisons in warfare. P. Collins. *il Sci Am* 109:167 Ag 30 '13
- Insects as carriers of contagion**
 Insects that carry disease. C. Dury. *Sci Am S* 76:178-9 S 20 '13
- Inspection**
 Field for the inspector's efforts. A. W. Tidd. *Eng N* 70:1030 N 20 '13
 Inspection of materials and finished products. E. F. Roberts. *Ind Eng* 13:418-21 O '13; Same. *Iron Age* 92:158-60 Jl 17 '13
- Inspection of automobiles.** See Automobiles—Inspection
- Inspection of boilers.** See Boiler inspection
- Inspection of bridges.** See Bridge inspection
- Inspection of buildings.** See Building inspection
- Inspection of cars.** See Car inspection
- Inspection of machinery.** See Machinery—Inspection
- Inspection of mines.** See Mine inspection
- Inspection of steamboats.** See Steamboat inspection
- Inspectors of plumbing.** See American society of inspectors of plumbing and sanitary engineers
- Institute of Italian naval and mechanical engineers**
 Papers on warships at recent meeting. *Int Marine Eng* 18:132-3 Mr '13
- Institution of automobile engineers**
 S. A. E. and I. A. E. off on lake trip. *porrs Automobile* 28:1150-5, 1180-1 Je 5 '13
- Institution of automobile engineers of Great Britain**
 England has live engineer institution. *Automobile* 28:1249 Je 19 '13
- Institution of naval architects**
 Annual meeting, March, 1913: list of papers. *Int Marine Eng* 18:150 Ap '13
- Institutions**
 Income statements for institutions. W. M. Cole. *J Account* 15:79-89 F '13
- Instruments**
 Alloys suitable for instrument work. W. Rosenhain. *Sci Am S* 75:82-3, 98 F 8, 15 '13
 See also Drawing instruments; Electric apparatus and appliances; Electric instruments; Machinery; Scientific apparatus and instruments

Insulation

- Air as an insulator when in the presence of insulating bodies of higher specific inductive capacity. C. L. Fortescue and S. W. Farnsworth. *il Am Inst E E Pro* 32:758-72 Mr '13; Discussion. 32:1132-57 My '13
- Application of a theorem of electrostatics to insulation problems. C. Fortescue. *il Am Inst E E Pro* 32:774-93 Mr '13
- Dielectric strength of thin insulating material. F. M. Farmer. *Am Inst E E Pro* 32:2192-2205 D '13; Summary. *Elec W* 62:1250 D 20 '13
- Discussion on high-frequency tests of line insulators (Umlay and Thomas), and Comparative tests on high-tension suspension insulators (Sothman). *il Am Inst E E Pro* 32:874-931 Ap '13
- Effect of temperature on the puncture voltage of cable insulation. F. R. Lufkin. *Elec W* 61:1310 Je 14 '13
- Heating of cables carrying current. S. Dushman. *Am Inst E E Pro* 32:164-88 F '13
- Insulating and grounding motors and generators. T. Croft. *diags Elec W* 62:908-9, 965-7 N 1-8 '13
- Insulation of joints in pipe lines. *diag Eng Rec* 67:590 My 24 '13
- Insulation problems at high potentials. *Elec W* 61:608-9 Mr 22 '13
- Internal heating of stator coils. R. B. Williamson. *Am Inst E E Pro* 32:438-48 F '13
- Lessons in insulation. *Elec Ry J* 41:788-9 My 3 '13
- New insulating material: micarta. *il Elec Ry J* 42:73 Ji 12 '13; *Elec W* 62:103-4 Ji 12 '13; *Power* 38:469 S 30 '13
- Suggested specifications for testing high-voltage insulators. F. W. Peck, J. A. Sandford and P. H. Thomas. *Am Inst E E Pro* 32:1642-65 Ji '13
- Suspension insulators suitable for 110,000-volt transmission. J. B. Baker. *il Sci Am* 108:312-3 Ap 5 '13
- Temperature and electrical insulation. C. P. Steinmetz and B. G. Laume. *Am Inst E E Pro* 32:113-23 F '13; Discussion. 32:1673-1737 Ag '13
- Uses of artificial insulating materials in the construction of electrical apparatus. H. Passavant. *Sci Am S* 76:47-8 Ji 19 '13
- See also* Electric cables; Electric resistance; Electric wires and wiring

Insurance

See also Bureau of safety

Insurance, Accident

See also Insurance, Employers' liability

Insurance, Automobile

- Club insurance saves \$78,000 a year to members of Los Angeles organization. *Automobile* 29:1102 D 11 '13
- Insurance from the electric viewpoint. C. H. Clark. *Automobile* 28:7 Ja 2 '13

Insurance, Casualty

- Factors of safety and insurance. *Power* 38:253-4 S 9 '13

Insurance, Employers' liability

- Liability insurance. F. H. Ellis. *Elec Ry J* 41:884 My 17 '13
- Liability insurance in Ohio. *Iron Age* 91:499-500 F 20 '13
- Report of Liability insurance committee of Wisconsin electrical association. *Elec Ry J* 41:111-3 Ja 18 '13

Insurance, Fire

- Fire prevention and fire insurance. J. Johnson. *Am Ind* 13:21 Je '13
- Insurance on mine property. W. H. Charlton. *Colliery* 33:696 Ji '13

Insurance, Industrial

- Ten-cent protective system. D. McKillop. *Mach* 19:552-3 Ag '13

See also Insurance, Employers' liability; Workmen's compensation

Insurance, Marine

- Perils of navigation on the Hudson Bay route. *Eng N* 69:222-3 Ja 30 '13

Intellectual property. *See* Copyright; Patents

Interchangeable mechanism

- Indirect causes of imperfect interchangeability. A. Whitehead. *Sci Am S* 75:251 Ap 19 '13
- Suggestions on tooling for interchangeable manufacture. *Mach* 19:545-6 Mr '13

See also Gages

- Intercooling in air compression.** R. S. Howard. *Ind Eng* 13:237-40 Je '13

Interest

- Accounting of interest and discount on notes.** J. Bauer. *J Account* 15:248-58, 341-50 Ap-May '13
- Fallacy of including interest and rent as part of manufacturing cost. A. L. Dickinson. *J Account* 16:89-98 Ag '13
- Interest a factor of costs? E. C. Gough. *J Account* 15:473-7 Je '13
- Interest on capital as part of production cost. *J Account* 16:145-9 Ag '13
- Treatment of interest on manufacturing investment; symposium.** *J Account* 15:231-44, 329-35, 427-32; 16:22-4 Ap-Jl '13

See also Discount

Interference (light)

- Röntgen-ray interference phenomena. *Elec W* 62:1194-5 D 13 '13
- Simplified formula for change in order of interference due to changes in temperature and pressure of air. I. G. Priest. *U S Bur Stand Bul* 9:473-81 D 15 '13

Interlake steamship company

- Big merger of independent lake ore carriers. *Iron Tr R* 52:835 Ap 10 '13

Interlaken school, La Porte, Indiana

- Daniel Boone idea in education. *il Sci Am* 109:361 N 8 '13

Interlocking plants

- Interlocking rules adopted in Wisconsin. *Elec Ry J* 42:936-7 O 25 '13

- Rules adopted by the railroad commission of Wisconsin. *Ry & Eng R* 53:1184-6 D 20 '13

- Internal combustion engines.** *See* Gas and oil engines

International association for testing materials

- Sixth congress, New York, 1912. *Concrete Cem* 2:206 Ap '13

- Work and policy.** E. Reitler. *Eng N* 69:84-5 Ja 9 '13

- International building exposition, 1913.** *See* Leipzig

International congress of refrigeration

- International congress of refrigeration. *Elec W* 61:436 Mr 1 '13

- 3d congress, Chicago, Sept., 1913. *Eng N* 70:679-81 O 2 '13

- 3d meeting, Chicago, Sept., 1913. *Elec W* 62:630-1 S 27 '13

- Third meeting, Chicago, Sept., 1913. *Ry Age* 55:567-71 S 26 '13

International congress on hygiene and demography

- Report of fifteenth international congress on hygiene and demography. Washington, D. C. Sept., 1912. *Am Soc M E J* 35:28-30 Ja '13

International congress on school hygiene

- Fourth congress, Buffalo, August, 1913. *Heat & Ven* 10:43-5 S '13

- Illumination topics at international school hygiene congress at Buffalo, N. Y., Aug., 1913. *Elec W* 62:461-6 S 6 '13

International electrotechnical commission

- Advance report to the U. S. national committee on the Berlin meeting. *Am Inst E E Pro* 32:2118-62 N '13

- Berlin meeting, Sept., 1913. *Elec W* 62:570-1 S 20 '13

- Meeting at Zurich, Switzerland, 1913. *Elec W* 61:385-6 F 22 '13

International engineering congress, 1915

- Congress to be held at the Panama-Pacific international exposition. *Ry & Eng R* 53:496 My 31 '13

International exposition of safety and sanitation

First exposition, New York, Dec., 1913. Iron Age 92:1111-2 D 18 '13
Many devices on exhibition. Iron Tr R 53:1120 D 18 '13

Safety methods and list of exhibits, Southern Pacific co. Ry & Eng R 53:1153-5 D 13 '13

International geological congress

Meeting at Toronto, Canada, August 7-11, 1913. R. A. E. Penrose, jr. J Fr Inst 176:583-6 N '13

Twelfth international geological congress at Toronto university, Aug., 1913. Eng & Min J 96:372-3 Ag 23 '13

International illumination commission

4th meeting, Berlin, Germany, Aug., 1913. Elec W 62:519-20 S 13 '13

International photometric commission becomes the International illumination commission. Elec W 62:511 S 13 '13

International motor company

Annual report for 1912. Automobile 28:585 Mr 6 '13

International photometric commission. See International illumination commission**International railroad master blacksmiths' association**

21st annual convention, Richmond, Va., Aug., 1913. Ry Age (Mech ed) 87:185-94 S '13; Same cond. Ry Age 55:569-70 Ag 29 '13

International railway fuel association

5th annual convention, Chicago, May, 1913. Ry & Eng R 53:485-7, 567-8 My 24-31 '13

5th annual convention, Chicago, 1913. Ry Age 54:1178-83 My 30 '13

5th annual meeting, Chicago, May, 1913. Eng N 69:1118 My 29 '13

Papers and discussions at 5th annual convention, Chicago, May, 1913. Ry Age (Mech ed) 87:289-94 Je '13

International railway general foremen's association

9th annual convention, Chicago, 1913. Ry & Eng R 53:695-7 JI 19 '13

9th annual convention, Chicago, 1913. Ry Age 55:96-7 JI 18 '13

9th annual convention, Chicago, July, 1913: papers and reports. Ry Age (Mech ed) 87:496-7, 415-28 Ag '13

Reports on apprenticeship, shop schedules, driving box work, and engine house efficiency. Ry Age 55:151-4 JI 25 '13

International road congress

Lessons from the international road congress. E. J. Sohler. Eng Rec 68:495-7 O 11 '13

3d international road congress, London, June, 1913. Eng Rec 68:sup 53-5 JI 19 '13

3d international road congress at London, 1913. E. L. Corthell. Eng N 70:182-4 JI 24 '13

3d international road congress at London, 1913. N. P. Lewis. Eng N 70:184-5 JI 24 '13

International societies

Proposed union of international associations. E. L. Corthell. Eng N 69:306-7 F 13 '13

International typographical union

59th annual convention, Nashville, Tenn., 1913. W. B. Prescott. pers Inland Ptr 51:897-903 S '13

International union for the protection of industrial property

Ratification of the convention of 1911. Sci Am 195:436 My 10 '13

Interrupters

Extinguishing the arc on breaking a circuit. W. Burstyn. Elec W 62:1972-3 N 22 '13

Mercury interrupter. G. F. Worts. Il Sci Am 109:35 JI 12 '13

Interstate commerce

See also Railroads and state

Interstate commerce commission

Annual report: Hours of service act; Investigation of accidents. Ry & Eng R 53:7-9 Ja 4 '13

Appointments to the Interstate commerce commission. Ry Age 55:899 O 31 '13

Broad court review of Interstate commerce commission decision. Ry & Eng R 53:83 Ja 25 '13

Decision on coal and coke rates. Ry & Eng R 53:100-1 F 1 '13

Deputy Interstate commerce commissioners proposed. Ry Age 54:251 Ap 25 '13

Development of the Interstate commerce commission. J. C. Jeffery. Ry Age 54:880-1 Ap 18 '13

Engineer for Interstate commerce commission. Eng Rec 68:694-5 D 20 '13

Freight rate advances and the Interstate commerce commission. Ry Age 55:10-1 JI 1 '13

Has the Interstate commerce commission's system of accounts met the needs of the Commission? W. E. Hooper. Ry Age 55:551-7 N 21 '13

Huge piece of engineering work: railway valuation act. Eng N 69:476-8 Mr 6 '13

Interstate commerce commission and safety on railroads. Sci Am 109:278 O 11 '13

Interstate commerce commission orders reduction in express rates. Ry & Eng R 53:751-3 Ag 9 '13

Limitations of Commission's powers. H. T. Newcomb. Ry Age 51:23-4 Ja 3 '13

New Haven collision of Sept. 2, 1913: abstract of report. Ry & Eng R 53:913-7 S 27 '13

Orders in the eastern advance rate application. Ry & Eng R 53:650-1 JI 5 '13

Overloading the Interstate commerce commission. Eng N 69:223-4 Ja 30 '13

Report on railroad accidents. Ry & Eng R 53:1204-5 D 27 '13

Report on track scales. Ry & Eng R 53:757-9, 763-4, 897-10 Ag 9, 23 '13

Revision of express rates. Eng N 70:719-20 O 9 '13

Through routes established: St. Louis, Springfield & Peoria et al. v. Peoria & Pekin union. Ry Age 54:478-9 Mr 14 '13

27th annual report to Congress, 1913. Ry Age 55:1228-30 D 26 '13

Two commerce court decisions: Shreveport case and Anthracite coal case. Ry Age 54:594-7 My 2 '13

Western classification no. 51 rejected. Ry & Eng R 53:31-2 Ja 11 '13

What I am trying to do. F. K. Lane. Ry Age 54:571-2 Mr 21 '13

See also Railroads—Rates

Railway valuation board

Personnel, pers Eng N 69:1019-20 My 15 '13; Ry & Eng R 53:166-7 My 17 '13

Preparing for railroad appraisal: personnel of Board. Ry & Eng R 53:416-7 My 3 '13

Interstate commerce law

Colorado free pass investigation. Ry & Eng R 53:349-51 Ap 12 '13

Interurban railroads

Award of contract for electrification of Melbourne suburban system. map Elec Ry J 41:255 F 8 '13

Berkshire street railway—recent improvements. Il plans Elec Ry J 42:1170-7, 1270-4 D 6, 20 '13

Center-entrance interurban cars for the Kansas City, Clay County & St. Joseph railway. Il Elec Ry J 41:120-2 Ja 13 '13

Central electric railway assn.; proceedings of annual meeting, 1913, abstracts of papers and reports on car equipment maintenance, fare registration, coupler installation, interline freight, etc. Elec Ry J 41:370-80 Mr 1 '13

Determination of probable operating revenue. L. E. Fischer. Elec Ry J 42:301-6 Ag 23 '13

Estimating operating expense and cost of construction of proposed electric interurban railway. L. E. Fischer. Elec Ry J 42:380-7 S 6 '13

Hypothetical electric interurban railways. L. E. Fischer. Elec Ry J 42:460-2 S 20 '13

Interurban and street car service defined. Elec Ry J 42:1113 N 22 '13

Interurban railway versus the city railway. J. M'Phillips. Elec Ry J 41:423-4 Mr 8 '13

Interurban railroads—Continued.

- Interurban roads in the new Indiana law. Elec Ry J 41:617 Ap 5 '13
- Interurban terminals. J. F. Hanlon. Elec Ry J 41:814-5 My 3 '13
- Kansas City, Clay county & St. Joseph railway. It plans map Elec Ry J 42:212-21 Ag 9 '13
- New suburban line for Philadelphia. It Elec Ry J 41:589 Mr 29 '13
- New 1200-volt line between Nashville and Gallatin, Tenn. It plans Elec Ry J 42:172-6 Ag 2 '13
- Oakland, Antioch & Eastern Ry. It Ry & Eng 11 53:945-6 O 25 '13
- Recent interurban construction in the far West. Elec Ry J 41:572-3 Mr 29 '13
- Relation of carriers to the development of the territory they serve. P. Shoup. Elec Ry J 42:821 O 16 '13
- Relation of interurban freight service to the high cost of living. E. C. Spring. Elec Ry J 41:171 Ja 25 '13
- Report of joint committee of Am. electric railway engineering and Transportation and traffic associations on train operation for interurban service. Elec Ry J 42:782-3 O 15 '13
- Rhine high-tension direct-current railways. It map Elec Ry J 42:962-6 N 1 '13
- Through routes established. St. Louis, Springfield & Peoria et al. v. Peoria & Pekin union. Ry Age 54:478-9 Mr 14 '13
- Through routes ordered among interurban lines. Ry & Eng R 53:691-3 Ji 19 '13

See also Electric railroads

Inundations. See Floods**Inventions**

- Biological inventions: patenting life processes for industrial uses. Sci Am S 76:226-7 O 11 '13
- How inventors use ultra-violet rays. It diagrs Sci Am 109:335-6 N 1 '13
- How to sell inventions. W. A. Du Puy. Sci Am 108:476-7 My 24 '13
- Inventor and his reward. L. W. Smith. Sci Am 108:31 Ja 11 '13
- Inventors and inventions. Sci Am 108:292 Mr 29 '13
- Letters patent in relation to modern industrial conditions. F. P. Fish. Sci Am S 76:201-3, 222-4 S 27-O 4 '13
- Modern automobile torpedo; the story of a great invention. R. G. Skerrett. It Sci Am 108:8-9 Ja 4 '13
- Modern industrial birth-rate. H. M. Kahler. Am Ind 14:11-3 D '13
- Principle of reversal: a suggestion for inventors. H. H. Supplee. It Sci Am 109:344 N 1 '13
- Protection of intellectual property in relation to chemical industry. L. H. Baekeland. Met & Chem Eng 11:31-6 Ja '13
- Quelles sont les dix plus grandes inventions de notre temps et comment? E. Stoop. Sci Am S 76:346-7 N 29 '13
- Rewarding the inventor. C. F. Jenkins. Sci Am 109:227 S 20 '13
- Simple methods in model-making: how soft wood and cardboard can be used. P. Collins. It Sci Am 109:65 Ji 26 '13
- Spirit of invention; the keynote of our modern age. F. W. Parker. Sci Am S 76:71 Ag 2 '13
- Ten greatest inventions. Sci Am 109:243, 339 S 27, N 1 '13
- Ten greatest inventions. J. H. Boyden. Sci Am 109:283 O 11 '13
- Value of inventions. S. H. Kennedy. Sci Am 108:375 Ap 26 '13
- What are the ten greatest inventions of our time? C. Cahall. Sci Am S 76:310-1 N 15 '13
- What are the ten greatest inventions of our time? G. M. Powe. Sci Am 109:368 N 8 '13
- What are the ten greatest inventions of our time? W. I. Wyman. It Sci Am 109:337-9 N 1 '13
- What are the ten greatest inventions of our time, and why? a prize article contest. Sci Am 108:512; 109:86 Je 7, Ag 2 '13
- What are the ten greatest inventions of the age? E. Schultze. Sci Am S 76:335 N 22 '13
- What are the ten greatest inventions of the age, and why? L. P. Webert. diagrs Sci Am S 76:371-5 D 13 '13
- See also Patents
- Inventories**
- Accountant's relation to inventory. II: C. Magee. J Account 16:443-56 D '13
- Inventors**
- Rewarding the inventor. C. F. Jenkins. Sci Am 109:227 S 20 '13
- Inventors' guild**
- Preliminary report to the Inventors' guild: the guild's relation to patent practise. F. L. O. Wadsworth. Sci Am S 75:146-7, 166, 178-9 Mr 8-22 '13
- Investments**
- America's investment army. L. Barr. Am Ind 14:16-7 D '13
- Private irrigation project as an investment. T. Berry. Eng N 70:854-6 O 30 '13
- Iowa electrical association**
- 12th annual convention, Waterloo, Iowa, 1913. Elec W 61:920-1 My 3 '13
- Iowa master plumbers' association**
- 25th annual convention, Sioux City, Jan., 1913. It Dom Eng 62:110-3 Ja 25 '13
- Iowa street & interurban railway association**
- Tenth annual convention, Waterloo, 1913. Elec Ry J 41:812-8 My 3 '13
- Iron**
- Cleaning of steel and iron. C. S. Thompson. Metal Ind n s 11:119-20 O '13
- Coloring iron and steel products. E. F. Lake. Mach 19:778-9 Je '13
- Corrosion of iron and overvoltage. Met & Chem Eng 11:289-90 My '13
- Critical ranges A2 and A3 of pure iron. G. K. Burgess and J. J. Crowe. It diagrs Am Inst Min E Bul 82:2537-91 O '13; Discussion. 84:2870-89 D '13
- Electrolytic corrosion of iron in soils. Eng Rec 68:34-5 Ji 12 '13
- Electrolytic corrosion of iron in soils. E. McCollum and K. H. Logan. Am Inst E E Pro 32:1516-75 Ji '13
- Electrolytic theory of the corrosion of iron. B. Lambert. Met & Chem Eng 11:272-4 My '13
- Engineering materials. C. A. McAllister. Int Marine Eng 18:53-5 F '13
- Fluidity of iron. W. J. Keep. Foundry 41:320 Ag '13
- Ingot iron. It Ry Age 55:112-4 Ji 18 '13
- Mining engineers discuss iron and steel topics. Iron Tr R 53:761-2 O 23 '13
- Rusting of iron. Sci Am 108:67 Ja 18 '13
- Selecting and specifying protective coats for iron and steel. J. C. Smith. Eng M 44:334-9 D '12
- Strength and ductility of iron, steel and bronzes at high temperatures. Eng N 69:372-4 F 20 '13
- See also Annealing; Blast furnaces; Cast iron; Corrosion and anti-corrosives; Foundry practice; Galvanizing; Hardware; Iron founding; Iron industry; Iron mines and mining; Iron ores; Ironwork; Pickling (metals); Pig iron; Slag; Steel; Wrought iron
- Analysis**
- Application of the electric resistance furnace to determination of oxygen in iron and steel. R. H. McMillen. It Iron Age 91:308-9 Ja 30 '13; Same. Met & Chem Eng 11:86-7 F '13
- Determination of oxygen in iron and steel. Iron Age 92:270-1 Ag 7 '13
- Determination of oxygen in iron and steel. A. S. Cushman; R. H. McMillen. Met & Chem Eng 11:176-7 Ap '13
- Determination of oxygen in iron and steel: Ledebur method. W. R. Fleming. It Iron Age 91:1549-2 Je 26 '13; Same. Iron Tr R 53:126-9 Ji 17 '13

Iron—Analysis—Continued.

Methods of the United States steel corporation for the commercial sampling and analysis of pig-iron. J. M. Camp. *Am Inst Min E Bul* 74:279-308 F '13

Testing

Early use of the microscope at iron and steel works. P. Kreuzpointner. *Iron Age* 92:359 Ag 14 '13

See also Cast iron—Testing

Iron, Wrought. See Wrought iron**Iron alloys**

Ferro-titanium alloy in the manufacture of iron and steel. C. V. Slocum. *il Sci Am* 108:512 Je 7 '13

Non-corrosive iron alloy: duriron. *Eng N* 69:563 Mr 20 '13

Tariff hearings on schedules B and C. *Elec W* 61:340 F 15 '13

Wittorff's iron-carbon equilibrium diagram. E. Stoughton. *il Am Inst Min E Bul* 74:227-37 F '13

See also Ferromanganese; Ferrovandium

Iron and steel electrical engineers. See Association of iron and steel electrical engineers**Iron and steel institute**

Annual meeting. London, May, 1913. *Iron Age* 91:1181-4 My 15 '13

Discussions on papers at Brussels meeting. *Iron Age* 92:669-71 S 25 '13

Iron and steel institute, American. See American iron and steel institute**Iron founding**

Aluminum as flux. R. Grimshaw. *Metal Ind n s* 11:425 O '13

Better melting ratio. W. J. Keep. *Foundry* 41:107 Mr '13

Calculating mixtures for malleable cast iron. H. Hemenway. *Foundry* 41:451-5, 497-501 O-N '13

Electric furnaces in iron and brass foundries. E. K. Scott. *Foundry* 41:379-81 S '13

First and last iron from the cupola. W. J. Keep. *Foundry* 41:117 Mr '13

Foundry pig iron smelted in electric furnace operations of Noble electric steel co., Heroult, Cal. *il Iron Tr R* 53:43-7 S 18 '13

Gray iron formed in delicate shapes. *il Iron Age* 92:1095 N 13 '13

Gray iron mixtures for motor car castings. H. E. Swan. *il Iron Tr R* 53:963-8 N 27 '13

Large water wheels for Keokuk power plant: problems involved in molding. *il Iron Tr R* 52:407-10 F 13 '13; Same. *Foundry* 41:109-11 Mr '13

Melting difficulties. W. J. Keep. *Foundry* 41:186 My '13

New method of molding cast iron fire pots. *il Foundry* 41:205-6 My '13

Removing sulphur from molten cast iron. *diag Iron Age* 92:1325-6 D 11 '13

Secrets of automobile casting manufacture. *il Foundry* 41:261-71 J1 '13

Troubles of malleable foundries. R. Moldenke. *Iron Age* 92:339-41 O 23 '13; Same. *Foundry* 41:471-3 N '13

Use of chills. W. J. Keep. *Foundry* 41:182 My '13

See also Boiler plate; Cast iron; Cupola furnaces; Foundry practice; Pig iron

Iron industry and trade

Alabama iron market. L. W. Friedman. *Eng & Min J* 95:82 Ja 11 '13

British trade booms in 1912. J. Horton. *Iron Tr R* 52:107-10 Ja 2 '13

Canadian iron in 1913. *Eng & Min J* 96:584 S 27 '13

Chairman Topping on iron and steel tariff: argument against Underwood bill. *Iron Age* 91:206-7, 227-8 Ja 16 '13

Charts showing fluctuations in iron and steel prices, 1895-1912. *Iron Tr R* 52:sup [104a] Ja 2 '13

Cost of Brazilian iron ores. W. Jones. *Eng & Min J* 95:1208 Je 14 '13

Course of iron output and prices 1800-1910. E. C. Eckel. *Iron Tr R* 53:348-50 Ag 21 '13

Distribution of rolled products. *Iron Age* 92:156-8 Ag 28 '13

European ore disappears from eastern market. C. J. Stark. *il Iron Tr R* 52:145-51 Ja 9 '13

Export trade in iron and steel in 1912. *Iron Age* 91:262 Ja 23 '13

Finished products make rapid increase in exports—imports continue to decline. *Iron Tr R* 52:591 Mr 6 '13

Foundry iron prices at Cincinnati and Chicago: a record of 37 years. *Iron Age* 91:382 F 6 '13

Germany highly prosperous in spite of wars. *Iron Tr R* 52:83-4 Ja 2 '13

Hearings before the ways and means committee. *Iron Tr R* 52:263-6 Ja 23 '13

Iron and metal markets. *See Weekly numbers of the iron age*

Iron and steel in 1912. F. Hobart. *Eng & Min J* 95:80-2 Ja 11 '13

Iron and steel jobbing warehouse: handling and storing material at Roehm & Davidson house, Detroit. *il plan Iron Age* 92:831-3 O 16 '13

Iron and steel market. *See monthly numbers of Metallurgical & chemical engineering*

Iron and steel prices for fifteen years, 1898-1912. *Iron Age* 91:32-3 Ja 2 '13

Iron capacity and prospects. *Eng & Min J* 96:369 Ag 23 '13

Iron market and its reviewers. *Iron Age* 91:897-8 Ap 10 '13

Iron mining industry. *Eng & Min J* 96:400 Ag 30 '13

Iron trade in 1912: Pittsburgh, Philadelphia, Chicago, Cincinnati. *Iron Age* 91:78-85 Ja 2 '13

Lake Superior iron ore trade in 1912. D. E. Woodbridge. *Iron Age* 91:103-5 Ja 2 '13

National iron and steel labor report: conditions existing in 1910. *Iron Age* 91:954-5 Ap 17 '13

New Underwood bill; Iron ore and rails placed on the free list. *Iron Tr R* 52:876-8 Ap 10 '13

Noteworthy year in iron and steel. *Met & Chem Eng* 11:3-4 Ja '13

Our effective blast furnace capacity. *Iron Age* 91:669-70 Mr 13 '13

Our foreign iron and steel trade in 1912. *Iron Age* 91:600 Mr 6 '13

Pig iron curtailment. *Iron Age* 92:1064-5 N 6 '13

Pittsburgh iron and steel markets. B. E. V. Luty. *Eng & Min J* 95:83-4 Ja 11 '13

Plate, sheet and tin plate production in 1912. *Iron Age* 91:1400-1 Je 5 '13

Production of finished iron and steel in 1912. *Iron Age* 92:352-5 Ag 14 '13

Production of structural shapes in United States in 1912. *Eng Rec* 67:616 My 31 '13

Production of structural shapes, wire rods and nails in 1912. *Iron Age* 91:1265-6 My 22 '13

Record-breaking iron ore shipments in 1912. *il Iron Tr R* 52:101-6 Ja 2 '13

Remarkable sheet and tin plate production. *Iron Age* 91:1439-40 Je 12 '13

Review of conditions in trade centers. *See weekly numbers of the Iron trade review*

Southern pig iron steadily advanced in price in 1912. S. G. Backman. *Iron Tr R* 52:116-22 Ja 2 '13

Unprecedented wave of prosperity in Russia. *Iron Tr R* 52:111-5 Ja 2 '13

Year of tremendous activity in Chicago district. E. R. Boyer. *Iron Tr R* 52:94-6 Ja 2 '13

See also Iron mines; Iron ores; Rolling mills; Steel industry; United States steel corporation

Iron metallurgy

Beneficiation of lake iron ores. D. E. Woodbridge. *Eng & Min J* 95:311-2 F 8 '13

Chemical reactions of the puddling process. T. Turner. *Iron Age* 91:888-9 Ap 10 '13

Iron metallurgy *Continued.*

- Concentrating low-grade iron ores in Michigan. II plan Met & Chem Eng 11:356-7 Je 13
- Concentration of iron-ores. C. Q. Payne. Am Inst Min E Bul 75:529-32 Mr '13
- Concentration of iron-ores: discussion of the paper of N. V. Hansell. F. L. Grammer; R. H. Richards. Am Inst Min E Bul 77: 887-91 My '13
- Concentration of low-grade iron ores at Diorite, Mich. II plan Eng & Min J 95:1016-8 My 17 '13
- Desulphurization of New Jersey iron ore. II diag Iron Tr R 52:297-9 Ja 30 '13
- Electric furnace in the production of iron from ore: discussion of present status and comparison of Scandinavian and Californian practices. D. A. Lyon. II Met & Chem Eng 11:15-9 Ja '13; Same. Sci Am S 75: 381-3 Je 14 '13
- Electric heating and the removal of phosphorus from iron. A. E. Greene. Am Inst Min E Bul 74:269-77 F '13
- Electric smelting of iron ore in California. II Iron Age 92:124-6 Jl 17 '13
- Electrolytic production of iron sheets and tubes, etc. K. W. Palmer and J. A. Brinell. Met & Chem Eng 11:197-203 Ap '13
- Experiment in smelting titaniferous magnetite. L. O. Kellogg. Eng & Min J 96:604 S 27 '13
- Goltra process for concentrating iron ores. Eng & Min J 95:475-6 Mr 1 '13
- Iron blast furnace and the characteristics of its fuels. J. E. Johnson, jr. Met & Chem Eng 11:687-93 D '13
- Iron breakouts in blast furnaces. diag Iron Age 91:822-3 Ap 3 '13
- Iron concentrator of unusual design. L. O. Kellogg. II Eng & Min J 96:243-5 Ag 9 '13
- Iron-ore concentration: commercially used methods in the United States. N. V. Hansell. Eng M 44:767-71 F '13
- Magnetite in mattes and slags. J. W. Benne. Eng & Min J 96:1213 D 27 '13
- Magnetite in mattes and slags. E. W. Walter. Eng & Min J 95:213-1 Ja 25 '13
- Metallurgy of iron and steel. B. Stoughton. Eng & Min J 95:98-103 Ja 11 '13
- Microstructure of sintered iron-bearing materials. B. G. Klugh. II Am Inst Min E Bul 77:813-28 My '13
- Pig iron and its method of manufacture. J. J. Porter. II Iron Tr R 52:61-75 Ja 2 '13
- Progress in the metallurgy of iron and steel. B. Stoughton. Iron Age 91:12-4 Ja 2 '13
- Reactions in the blast furnace. Iron Age 92: 1167-8 N 20 '13
- Reduction of ferric oxide by ferrous sulphide. L. T. Wright. Eng & Min J 96:825-6 N 1 '13
- Separation of iron and manganese. Eng & Min J 95:377-8 F 15 '13
- Smelting iron electrically with coke as fuel. H. J. Hanson. II Iron Tr R 53:1003-7 D 4 '13
- Utilization of highly silicious iron and manganese minerals. N. Tarugi. Eng & Min J 96:64 Jl 12 '13
- Witherbee-Sherman no. 3 magnetic mill. S. L. Nason. II Eng & Min J 16:959-62 N 22 '13

See also Blast furnaces; Iron alloys

Iron mines and mining

- Close work in iron mining: Alabama Clinton reserves. New York Clinton ores. D. E. Woodbridge. Eng & Min J 96:505-6 S 13 '13
- Lake Superior and Cuban iron ores. D. A. Willey. II Mines & Min 33:340-2 Ja '13
- W. J. Olcott on iron mining. Eng & Min J 96:820 N 1 '13

See also Iron ores

Valuation

- Factors in the valuation of iron mines. J. R. Finkay. Iron Tr R 52:518-21 F 27 '13; Same. Am Inst Min E Bul 75:487-502 Mr '13; Same Iron Age 91:651-6 Mr 13 '13; Excerpts. Eng & Min J 95:339-40 My 10 '13; Discussion. Am Inst Min E Bul 77:915-40, 82:2605-8 Mr, My '13

- Valuation of iron mines. Eng & Min J 95: 477-8 Mr 1 '13

Alabama

- Iron mining methods and costs in Alabama. D. E. Woodbridge. Iron Age 92:588-9 S 11 '13

Chile

- Extent of Chilean iron ore deposits. map Iron Tr R 52:159-62 F 20 '13
- Iron ore resources of Chile. C. Vattier. Eng & Min J 95:234-6 Ja 25 '13
- Tofo iron mines in Coquimbo, Chile. Iron Age 91:427 F 13 '13

Cuba

- Cuban iron ore reserves. D. Whitaker. Eng M 46:253-4 N '13
- Cuban ore beds; world's greatest iron-ore deposits. D. A. Willey. II Eng M 44:867-83 Mr '13
- Vast ore deposits of Cuba. H. Hale. Sci Am 109:142 Ag 23 '13

Michigan

- Applied geology, Michigan iron ranges. P. B. McDonald. diag Eng & Min J 96:268-10 Ag 2 '13; Same. Sci Am S 76:235 O 11 '13
- Busy year on the old ranges of Lake Superior. M. P. Youngs. Iron Tr R 52:168-71 Ja 9 '13
- Developments on Michigan iron ranges. P. B. McDonald. II Eng & Min J 96:335-9 Ag 23 '13
- Developments on the Michigan iron ranges. Eng & Min J 96:777-8 O 25 '13
- Living conditions on the Lake Superior ranges. II Iron Tr R 52:245-8 Ja 23 '13
- Michigan iron ranges. Eng & Min J 96:414 Ag 30 '13
- Rogers mine, Iron River, Mich. Eng & Min J 95:227-8 Ja 25 '13
- Sanitation in mines and mine towns, Lake Superior region. W. H. Moulton. Iron Age 92:475-6 Ag 28 '13; Same. Eng & Min J 96: 391-2 Ag 30 '13

Minnesota

- Iron mining in Minnesota. Eng & Min J 95: 1295 Je 28 '13
- Marechal development of the Mesabi range. Iron Age 92:510-1 S 4 '13
- Milling system of mining Mesabi iron. Eng & Min J 96:545-6 S 20 '13
- Mining methods on the Mesabi range. Iron Tr R 53:450-3 S 11 '13
- Notes on the Cuyuna range. L. O. Kellogg. II map Eng & Min J 96:1199-1203 D 27 '13
- Outline of Mesabi topslicing method. plan Eng & Min J 96:578-80 S 27 '13
- Underground costs in Minnesota iron mining. Eng & Min J 96:408 Ag 30 '13

New York

- Magnetite mines near Port Henry, N. Y. L. O. Kellogg. II Eng & Min J 96:863-8 N 8 '13
- Methuselah among American mines: the Sterling iron mine, New York. L. O. Kellogg. II Eng & Min J 96:431-3 S 6 '13
- Notes on Lake Champlain iron mines. L. O. Kellogg. Eng & Min J 96:1065-7 D 6 '13

Sweden

- Mining magnetite by steam shovel in Sweden. A. S. Rice. II Iron Tr R 53:953-60 N 27 '13

United States

- American iron-ore reserves. E. C. Eckel. Eng M 44:7-15 O '12
- Mining iron ore in eastern and southern states. D. E. Woodbridge. Iron Tr R 53: 379-80 Ag 28 '13

Wisconsin

- Montreal iron mine, Gogebic range, Wis. II Eng & Min J 95:955-8 My 10 '13

Iron molder's union

- Present attitude and activities of organized labor. Iron Age 92:1219-21 N 27 '13

Iron ores

- American iron-ore reserves. E. C. Eckel. Eng M 44:7-15 O '12

Iron ores. Continued.

- Applied geology, Michigan iron ranges. P. B. McDonald, diags Eng & Min J 96:208-10 Ag 2 '13; Same, Sci Am S 76:235 O 11 '13
- Brown iron ores as cavity fillings. E. C. Eckel, il Eng & Min J 96:1-2 J1 5 '13
- Chromiferous iron ores of Greece. Iron Tr R 53:324 O 9 '13
- Coke and iron ore freight rate decisions. Iron Age 91:1478-80 Je 19 '13
- Coleraine iron ore washing plant. J. U. Selenius, il plan Iron Age 92:452-5, 479-80 Ag 28 '13
- Cuban iron-ore reserves. D. Whitaker, Eng M 16:253-4 N '13
- Cuban ore beds; world's greatest iron-ore deposits. D. A. Willey, il Eng M 41:867-83 Mr '13
- Developments on Michigan iron ranges. P. B. McDonald, il Eng & Min J 96:335-9 Ag 23 '13
- European ore disappears from eastern market. C. J. Stark, il Iron Tr R 52:145-51 Ja 9 '13
- Experiments with titaniferous ores by McIntyre iron co. Iron Tr R 53:797-8 O 30 '13
- Extent of the Chilian iron ore deposits, map Iron Tr R 52:459-62 F 20 '13
- Great ore deposits acquired by Bethlehem co. il map Iron Tr R 52:268-9 Ja 23 '13
- Important changes in coke and iron ore rates. Iron Tr R 52:1415-6 Je 19 '13
- Increase in iron content of Lake Superior ores. Iron Tr R 52:815-6 Ap 3 '13
- Increased output of merchant lake ore. O. J. Abell, Iron Age 92:514-5 S 4 '13
- Iron ore deposits of the southern states. E. C. Eckel, il map Iron Tr R 52:77-83 Ja 2 '13
- Iron ore resources of Chile. C. Vattier, Eng & Min J 95:234-6 Ja 25 '13
- Iron-ores of the South range of the Cuyuna district, Minnesota. C. Zapffe and W. A. Barrows, jr. Am Inst Min E Bul 74:215-25 F '13
- Lake Superior and Cuban iron ores. D. A. Willey, il Mines & Min 33:340-2 Ja '13
- Lake Superior iron ore district. D. E. Woodbridge, Eng & Min J 95:85-6 Ja 11 '13
- Lake Superior iron ore leases. C. Zapffe, Eng & Min J 95:338 F 8 '13
- Lake Superior iron-ore outlook for 1914. Eng & Min J 96:869-70 N 8 '13
- Letter to Harper's weekly correcting misstatements in an article on iron ores. H. V. Winchell, Eng & Min J 95:508 Mr 8 '13
- Ore experts testify for U. S. Steel corporation. Iron Age 92:817-9 O 9 '13
- Ore shipments from Lake Superior ranges. Iron Tr R 52:586-9 Mr 6 '13
- Position of the titaniferous magnetites. Eng & Min J 96:678-9 O 11 '13
- Texas iron ore deposits. R. Linton, il map Eng & Min J 96:1153-6 D 20 '13
- Titaniferous iron ore investigation. Eng & Min J 96:654 O 4 '13
- Titaniferous iron-ore myth. Eng & Min J 96:705-6 O 11 '13
- Titaniferous iron ores in the United States, their composition and economic value. J. T. Singewald, jr. il U S Bur Mines Bul 64:1-141 '13
- Vast ore deposits of Cuba. H. Hale, Sci Am 109:142 Ag 23 '13
- Venezuelan iron ore development, il map Iron Tr R 52:685-7 Mr 20 '13
- Witnesses tell of iron ore reserves. Iron Tr R 53:715-6 O 16 '13
- See also* Iron industry; Iron metallurgy; Iron mines and mining
- Iron rust.** *See* Corrosion
- Iron silver mining co., Leadville, Colo.**
Report for 1912. Eng & Min J 95:860 Ap 26 '13
- Iron trade.** *See* Iron industry and trade
- Iron ware.** *See* Cast iron ware
- Iron work.** *See* Ironwork
- Iron works**
Blast furnaces planned for New York district. Iron Tr R 53:683-4 O 16 '13
- Iron and steel output cut down by floods. Iron Age 91:861-4 Ap 3 '13
- Iron making in New York harbor. Iron Age 92:919 O 23 '13
- Iron smelting in Maryland in the 18th century. H. W. Lewis, il Iron Tr R 53:159-60 S 11 '13
- New iron and steel works construction. Iron Age 91:105,122-7 Ja 2 '13
- Rehabilitation from the Dayton flood. K. G. Martin, il Iron Age 91:1112-5 My 8 '13
- Situation in the flooded districts. Iron Age 91:917-9 Ap 10 '13
- Utility of efficiency-records in the manufacture of iron. J. J. Porter, Am Inst Min E Bul 76:513-53 Ap '13
- See also* Foundries; Youngstown sheet and tube co.
- Ironwork**
Manufacture of chilled iron car wheels. F. C. Weber, Met & Chem Eng 11:92-1 F '13
- See also* Forging; Iron industry; Metal work; Welding; Wrought iron
- Ironwork, Artistic**
Artistic treatment of cast iron. B. J. Fletcher, Foundry 41:354-6 S '13
- Early American hardware; an interesting collection of Dutch-colonial examples. G. W. Nash, il Arch Rec 34:329-33 O '13
- Ironworkers**
Accidents and diseases of ironworkers. F. Roepke, Ind Eng 13:52-3 F '13
- Irrigation**
Agriculture, electricity and irrigation; electrically driven pump. P. A. Bates, il Sci Am 108:472 My 24 '13
- Causes of inefficiency of irrigation. A. S. Gibb, Eng Rec 68:608-9 N 29 '13
- Concrete pipe and overflow basins for distributing irrigation water on the Sacramento valley project. E. C. Mills, il Eng Rec 67:652-4 Je 14 '13
- Duty of water for irrigation; amount and character of water losses as determined by extensive studies in Idaho. Eng Rec 67:305-6 Mr 15 '13
- Engineering principles applied to farm irrigation. A. L. Harris, il Eng N 70:1172-5 D 11 '13
- Experience with wood-stave pipe in irrigation. R. K. Tiffany, il Eng N 69:244-7 F 6 '13
- Hydraulic laboratory for irrigation investigations. Fort Collins, Colo. V. M. Cone, il plan Eng N 70:662-5 O 2 '13
- Irrigation and the need for hydrographic surveys. Eng Rec 67:568 My 21 '13
- Irrigation pumping plants. Eng Rec 68:53-4 J1 12 '13
- Module or constant-discharge device for irrigation works. plan Eng N 69:502 Mr 13 '13
- Permanent fertility of irrigated lands. Eng Rec 67:171 F 15 '13
- Private irrigation project as an investment. T. Berry, Eng N 70:851-6 O 30 '13
- Reinforced-concrete chutes on Boise project. F. W. Hanna, il Eng Rec 67:500-1 My 3 '13
- Reservoir and canal losses in irrigation. il Eng N 69:618-23 Mr 27 '13
- Seasonal duty of irrigation water; conclusions based on observations made in the Boise valley, Idaho. F. W. Hanna, Eng Rec 67:90-1 Ja 25 '13
- Seepage losses in irrigation systems; their economic significance. E. G. Hopson, il Sci Am S 75:56-9 Ja 25 '13
- Selling water by current meter measurement. J. C. Allison, il Eng N 69:66-70 Ja 9 '13
- Value of snow surveys in irrigation; methods for predicting run-off from snow-clad mountain areas. J. C. Alter, il Eng M 45:737-40 Ag '13
- What is the matter with irrigation? Eng N 69:1237-40 Je 12 '13
- See also* Dams; Drainage; Irrigation canals; Reservoirs; Water rights

Irrigation — *Continued.*

Cost

- Cost of irrigation works per acre supplied with water. Eng N 69:1008-9 My 15 '13
 Cost of reclamation service and other irrigation projects in Colorado. J: E. Field. Eng N 70:348-55 Ag 21 '13
 Unestimated cost in the development of irrigation projects. Eng Rec 67:510-1, 529-30 My 10 '13
 Unestimated cost in the development of irrigation projects. C: K. Fox. Eng Rec 67: 620 My 31 '13

Arizona

- Irrigation of Santa Cruz valley. M. C. Hind-
 erlider. il map Eng Rec 68:200-1, 242-4
 Ag 23-30 '13

Babylonia

- Reclamation of ancient Babylonia by irriga-
 tion. E. J. Banks. il map Eng N 69:468-9
 Mr 6 '13

California

- South San Joaquin irrigation project. Califor-
 nia. il Eng N 70:748 O 16 '13
 Study of irrigation heads in the Modesto and
 Turlock irrigation districts. Cal. Eng N 70:
 502-3 S 11 '13
 Well-water irrigation system in southern Cal-
 ifornia. il plan Eng Rec 67:241 Mr 1 '13

Colorado

- Cost of reclamation service and other irriga-
 tion projects in Colorado. J: E. Field. Eng
 N 70:348-55 Ag 21 '13

Idaho

- Twin Falls-Oakley irrigation project. A. M.
 Korsmo. il plans Eng N 69:516-21 Mr 13 '13

Oregon

- Oregon state irrigation congress. Eng N 69:
 313 F 13 '13
 State and federal co-operation in irrigation
 work in Oregon. E. G. Hopson. Eng Rec
 68:685-6 D 20 '13

Philippine Islands

- Public works in the Philippine Islands un-
 der the American régime. H. F. Cameron.
 il Eng Rec 68:202 Ag 23 '13

Texas

- Rapid construction on Medina valley irriga-
 tion project in Texas. T. Bartlett. il plan
 map Eng N 70:508-13 S 11 '13

United States

- Federal report on Carey act irrigation pro-
 jects. Eng N 69:1321 Je 26 '13
 Government irrigation work. F. K. Lane. Eng
 N 70:1322 D 25 '13
 Irrigation water-supply for the Pima Indians.
 A. P. Davis. il Eng N 70:956-7 N 13 '13
 Ten years of government irrigation work; re-
 view of activities and experiences of U. S.
 reclamation service since passage of New-
 lands act. Eng Rec 67:128-30 F 1 '13; Same.
 Sci Am S 75:142-3 Mr 1 '13

Utah

- Great irrigation project at Strawberry val-
 ley. N. Forest. il Sci Am 108:288-9 Mr 29
 '13

Washington

- Wapato irrigation project in northern Wash-
 ington. Eng Rec 67:11-2 Ja 4 '13

Irrigation canals

- Facts about percolation from canals. W. C.
 Hammatt. diags Eng N 70:881-2 O 30 '13
 Lining an irrigation ditch with Hess metal-
 lic fluming. E. M. Chandler. il Eng N 70:
 464-5 S 4 '13
 Lining ditches with reinforced concrete. il
 Concrete Cem 2:265-7 Je '13
 Main canal of Medina irrigation project. il
 plans Eng Rec 68:424-6 O 18 '13
 Metal flumes for irrigation canals. Eng N
 70:1316-8 D 25 '13
 Metal flumes for irrigation canals. F. W.
 Hanna. il Eng N 70:1077-9 N 27 '13
 Reservoir and canal losses in irrigation. il
 Eng N 69:620-3 My 27 '13

- Seepage losses from earth canals. E. A. Mor-
 itz. Eng N 70:402-5 Ag 28 '13

Ishikari river, Japan

- Precipitation and runoff; with special re-
 lation to ice conditions. B. Okazaki. plans
 Eng N 70:850-2 O 30 '13

Islands, Floating. See Floating islands

Isthmian canal commission

- Extracts from annual report of Isthmian
 canal commission. G: W. Goethals. Eng N
 70:1122-5 D 4 '13

J

Jacks

- Jack for pulling drill rods and sounding bars.
 plan Eng Rec 67:37 Ja 11 '13
 New design of journal jack. il Am Eng 87:
 45 Ja '13

Jails. See Prisons

Jamaica, New York

- Jamaica improvement of the Long Island
 railroad. il plans Eng Rec 67:46-7 Ja 11 '13
 Long Island improvements at Jamaica. il
 map plans Ry Age 55:183-9 Ag 1 '13

James, Arthur Curtiss

- Country estate of Arthur Curtiss James:
 views. Arch & Bldg 45:439-51 N '13

Japan

Economic conditions

- Regarding manufacturing in Japan. J: S. Ni-
 choll. Am Ind 13:19-21 Mr '13

Japanning

- Fireproof japanning tank. A. P. Broadhead.
 diag Mach 19:547-8 Mr '13
See also Varnish and varnishing

Jenson, Nicolas, d. 1481?

- Printers of note. W. C. Bleloch. Inland Ptr
 50:676-7 F '13

Jersey City, New Jersey

Education

- School that trains boys for shop work: the
 William L. Dickinson high school. E: K.
 Hammond. il Mach 19:749-53 Je '13

Jetties

- Problems in removing sand Columbia river
 bar. Eng Rec 68:731 D 27 '13
 Rebuilding Humboldt Bay, Cal. jetties. Eng
 Rec 68:464-5 O 25 '13

Jigs

- Clamping work in jigs. diags Mach 20:300-3
 D '13
 Drill jig for cock keys. J. M. Henry. diags
 Am Mach 38:786-7 My 8 '13
 Economy in tool design. E. H. Pratt. diags
 Mach 20:38-40 S '13
 Jig for milling an irregular shaped guide.
 C. F. Meyer. diags Mach 19:359-61 Ja '13
 Jig for milling cam slots. C. F. Meyer. diags
 Mach 19:54-5 S '12
 Making of bushings for drill jigs. F. B. Ja-
 cobs. diags Mach 19:12-5 S '12
 Rotating jig for drilling connecting-rods. il
 Mach 19:882 Jl '13
 Two drill jig attachments. C. F. Meyer.
 diags Mach 19:429-30 F '13
 Universal drill jig. C. F. Meyer. plans Mach
 20:4-5 S '13

Jigs for ore treatment

- Dry concentration and separation of min-
 erals: the Plumb pneumatic jig. il Met &
 Chem Eng 11:722-4 D '13
 Plumb pneumatic jig. E: S. Wiard. il Eng
 & Min J 96:1090-1 D 6 '13
 Woodbury slime classifier. E: T. Wright.
 plan Colliery 33:397-8 F '13

Job composition. See Typesetting—Job work

Joint committee on concrete and reinforced

- concrete
 Abstract of second report. Eng N 69:258-64
 F 6 '13
 Second report: a review. Eng N 69:273-4 F
 6 '13

Joints (geology)

- Laws of jointing. B. Stevens. Am Inst Min
 E Bul 79:1285-1303 Jl '13

Joliet, Illinois**Railroads**

Newly completed union station at Joliet. II plan Eng Rec 67:74-5 Ja 18 '13
Track elevation at Joliet. map plan Eng N 69:952-5 My 8 '13

Jones, Howard M., 1871-

Sketch. por Ry & Eng R 53:466 My 17 '13

Jones, Inigo, 1573-1652

Contributions to the history of the English playhouse. H. Bell. II Arch Rec 33:262-7 Mr '13

Journalism

Science and journalism. Sci Am 108:426 My 10 '13

See also Editing; House organs; Trade papers

Jovian order

11th annual Jovian congress, New York city, Oct., 1913. Elec W 62:777-9 O 18 '13

Progress of the Jovian order—the electrical fraternity. E. C. Bennett. Elec W 62:143-4 Ji 19 '13

Judges

Technically trained judges to decide patent cases. C. A. P. Turner. Eng N 69:1241 Je 12 '13

Jungfrau

Jungfrau railway. II Sci Am 109:360 N 8 '13

Junior institution of engineers, Great Britain

Making membership in an engineering society a tangible asset. Eng N 70:369-71 Ag 21 '13

Junkers engine

Junkers engine. F. E. Junge. II Power 37: 120-1, 417-8 Ja 28, Mr 25 '13

Junkers vs. Diesel engine. A. M. Levin. Power 37:671-2 My 13 '13

Trials of a 100 brake horse-power marine oil engine. II Sci Am S 76:348-9 N 29 '13

K**Kahn bill**

Legalized blackmail—Kahn bill. L. H. Backeland. Elec W 62:1146-7 D 6 '13

Manufacturers and the Kahn law. Iron Age 92:1249 N 27 '13

Remarkable offer by the United States government to owners of patents and copyrights. Eng N 70:334-5 N 6 '13

Kamerun

Northern railway of Cameroon. II Sci Am S 75:84 F 8 '13

Kansas City, Missouri

Land-tax system or benefit assessments for public improvements. G. Kessler. Eng N 69:1026 My 15 '13

Public comfort stations at Kansas City, Mo. Dom Eng 62:2-7 Ja 4 '13

Parks

Kansas City park system. J. H. Lowry. II Munic Eng 44:2-7 Ja '13

Railroads

Beautifying Kansas City union station surroundings. B. J. Lubshéz. II Munic Eng 44:453-4 My '13

Construction work of the Kansas City terminal Ry. II Ry & Eng R 53:235-36 Mr 15 '13

Kansas City passenger terminal. II plan map Ry Age 54:1121-8 My 23 '13

Kansas City terminal railway. II plan map Eng N 70:237-44 Ag 7 '13

Rapid transit

Franchise negotiations in Kansas City resumed. Elec Ry J 41:1031 Je 7 '13

Franchise progress in Kansas City. Elec Ry J 42:469-70, 510-1 S 20-27 '13

Kansas City appraisals. Elec Ry J 41:389 Mr 1 '13

Mayor Jost's ideas on new franchise of Metropolitan street Ry., Kansas City. Elec Ry J 41:555 Mr 22 '13

Report on street railway system. Elec Ry J 41:716-20 Ap 19 '13

Street-railway valuation. Eng N 69:1053-7 My 22 '13

Unit subway construction in Kansas City. II diags Eng Rec 68:228-30 Ag 30 '13

Kansas City, Clay County & St. Joseph railway

Building a 1200-volt electric railway. R. P. Woods. II plan map Eng N 70:688-94 O 9 '13

Center-entrance interurban cars. II Elec Ry J 41:120-2 Ja 18 '13

Important and extensive interurban railway. II plans map Elec Ry J 42:212-21 Ag 9 '13

Kansas gas, water, electric light and street railway association

16th annual convention at Hutchinson, Oct., 1913. Elec W 62:783-5 O 18 '13

Kansas master plumbers' association

22nd annual convention, Kansas City, Kan., Mar. 1913. Dom Eng 62:317-20 Mr 15 '13

Kansas river

Concrete revetment work on the Kansas river improvement. F. M. Clutter. II diag Eng Rec 67:632 Je 7 '13

Kansas river valley

Protection against floods. J. Y. Oleson. map Eng Rec 67:631-2 Je 7 '13

Kaolin

Mining and treatment of feldspar and kaolin. A. S. Watts. II map U S Bur Mines Bul 53: 1-164 '13

Karns tunneling machine. O. J. Grimes. II Eng N 69:470-1 Mr 6 '13**Katanga**

Copper El Dorado in mid-Africa—the Katanga. C. F. Talman. map Sci Am 108:450 My 17 '13

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Kelp and other sources of potash. F. K. Cameron. II map J Fr Inst 176:347-83 O '13

Kelsey, Albert, and Cret. Paul P., architects

Pan American Union and its annex, Washington. D. C. C. M. Price. II plans diags Arch Rec 31:385-457 N '13

Kemp, James Furman, 1859-

James Furman Kemp, president, Am. Inst. M. E. F. D. Adams. Eng N 69:199-200 Ja 30 '13

Portrait. Eng N 69:196a Ja 30 '13

Kensico reservoir

New York city's water supply system. II Sci Am S 75:140 Mr 1 '13

Traveling plant for casting concrete blocks for Kensico dam, Valhalla, N. Y. II Eng Rec 67:528 My 10 '13

Kentucky state association of master plumbers

9th annual convention, Covington, April, 1913. Dom Eng 62:96-8 Ap 26 '13

Keokuk, Iowa

Historical review of the Keokuk hydroelectric development. II Elec W 62:462-4 S 6 '13

Hugh L. Cooper, who built the Keokuk dam. W. P. Green. Sci Am 109:366 N 8 '13

Mississippi lock at Keokuk. II Eng N 70:964-72 N 13 '13

Opening of the world's greatest power plant at Keokuk. II Sci Am 109:212-3 S 13 '13

World's largest water-power plant. II plans Elec W 61:1157-68 My 31 '13

Kerosene

Difficulties in kerosene carburetion. Automobile 28:973 My 8 '13

Fuel economies of the oil engine. J. A. Secor. Iron Age 91:574-6 Ap 17 '13

Gasoline and kerosene situation. J. A. Secor. Sci Am 108:459 My 17 '13

Kerosene for steel heating furnaces. H. C. Spillman. II plan Mach 20:125-6 O '13

Power from kerosene: a system whereby oil, kerosene and distillates are used in the ordinary type of gas engine. L. W. Ellis and W. R. Dray. II Sci Am S 75:105-6 F 15 '13; Excerpts. Sci Am 108:246-7 Mr 15 '13

S. A. E. talks kerosene. Automobile 28:586 Mr 6 '13

Kerosene *Continued.*

- Solving the fuel problem for the motor truck.
H. W. Slauson. *il* *diags* *Mach* 20:121-1 O '13;
Same. *Sci Am S* 76:292-4 N 8 '13
Use of kerosene in motor. *Automobile* 28:
603 M 6 '13
Vaporizing kerosene by partial combustion.
Sci Am 109:418-9 N 29 '13
Waning supply of gasoline. J. A. Secor. *Sci*
Am S 75:271-2 Ap 26 '13

See also Gas and oil engines; Petroleum

Kerosene engines. *See* Gas and oil engines**Kerr lake mining co., Cobalt, Canada**

- Kerr lake mining company costs. *Eng & Min*
J 96:1075 D 6 '13

Keys. *See* Locks and keys**Keys and keyways (machinery)**

- Cutting keyways in a lathe. W. H. Trueman.
il *Sci Am* 109:148 Ag 23 '13
Dimensions of taper keys and keyways; with
data sheet supplement. G. G. Pana. *Mach*
19:448 F '13
Keys and how to remove them. *diags* *Eng*
& *Min J* 95:20 Ja 4 '13
Keys and keyways for automobile. *il* *Auto-*
mobile 29:424-6, 467-9 S 4-11 '13

Keystone railway club

- Fifth meeting. Philadelphia. March, 1913.
Elec Ry J 41:505-7 Mr 15 '13
Sixth meeting. York, Pa., June, 1913. *Elec*
Ry J 41:1022-5 Je 7 '13

Kilauea

- Lava fountains of Kilauea. F. A. Perret. *il*
Sci Am S 75:332-3 My 24 '13

Kilns

- Mystery of the predynastic furnace solved.
M. N. Buckman. *il* *Sci Am S* 76:101-2 Ag
16 '13

Kincaid, Illinois

- Model mining town of Kincaid. map *Eng*
Rec 68:639-40 D 6 '13

Kinematics of machinery. *See* Machinery, Kinematics of**Kinetophone**

- Telephone aid to Edison talking pictures. *il*
Elec W 61:741 Ap 5 '13

Kitchen utensils

- Use of aluminium for kitchen and eating
utensils. *Sci Am S* 75:64 Ja 25 '13

Kitchens, Automobile

- Automobile field kitchen. *il* *Sci Am* 108:500
My 31 '13

Kite photography. *See* Photography, Aerial**Klic, Karl**

- Portrait. *Inland Ptr* 51:106 Ap '13

Knots and splices

- Short splice for rope drive. C. L. Mallory.
Power 37:461 Ap 1 '13
Splicing transmission rope. *il* *Eng & Min J*
96:110-1 Jl 19 '13
Splicing transmission rope. *il* *Sci Am S* 76:244
O 18 '13
Three-two method of rope splicing. A. Wil-
son. *diag* *Colliery* 33:684-5 Jl '13

Knowledge, Embroidery of. *Sci Am* 108:486 My 31 '13**Kobe, Japan****Harbor**

- Harbor construction at Kobe and Yokohama,
Japan. W. T. Howe. *il* *plan* *Eng N* 70:
556-7 S 18 '13

Kongo (battleship)

- Japanese battle-cruiser Kongo. *il* *Sci Am*
109:128 Ag 16 '13

Korea

- Trip through northern Korea. H. W. Turner.
il map *Am Inst Min E Bul* 76:561-9 Ap '13

Krom, Stephen R., 1836-1913

- Sketch. por *Eng & Min J* 45:718-9 Ap 5
'13

Krupp works

- Workmen's dwellings of Krupp works. *il* *Iron*
Age 92:611 S 18 '13

Kunheim metal. *See* Pyrophoric alloys**Kyanizing.** *See* Wood preservation**Kyshtim corporation, London**

- Kyshtim corporation. *Eng & Min J* 96:358 Ag
23 '13

L**La Belle iron works, Steubenville, Ohio**

- Annual report for 1912. *Iron Age* 91:718 Mr
20 '13

Labor and capital

- Employer's right to employee's invention. A.
F. Jobke. *Elec W* 61:152 Ja 18 '13
Is taking a job selling a commodity or mak-
ing an investment? *Am Mach* 38:875-6 My
22 '13
Practical principles of rational management.
A. H. Church. *Eng M* 45:24-33 Ap '13
Relationship of scientific management to
labor. J. P. Frey. *Iron Tr R* 52:917-8 Ap
17 '13

See also Arbitration; Industrial; Coopera-
tion; Employees; Industrial betterment;
Labor contracts; Strikes; Trade unions;
Wages; Workmen's compensation

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living; Efficiency, Industrial; Factory sani-
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Industrial betterment; Industrial educa-
tion; Industrial laws; Industry; Labor and
capital; Labor contracts; Labor laws; Min-
ers; Motion study; Occupations—Diseases
and hygiene; Occupations, Dangerous; Pen-
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Safety devices; Scientific management;
Strikes; Time study; Trade unions; Wages;
Welfare work in industry; Workmen's com-
pensation

Dwellings

See Housing problem

Brazil

- Wages in the Amazon river valley. H. E.
Collins. *Power* 37:521-3 Ap 15 '13

Germany

- Workmen's houses in Germany. plans *Ind*
Eng 13:374-6 S '13

Japan

- Regarding manufacturing in Japan. J. S. Ni-
choll. *Am Ind* 13:19-21 Mr '13

United States

- National iron and steel labor report; con-
ditions existing in 1910. *Iron Age* 91:551-
5 Ap 17 '13

Labor contracts

- Contract systems in Michigan copper mines.
Eng & Min J 96:1177-8 D 20 '13

Labor disputes

- Presidents Brown and Rea on labor dis-
putes. *Ry & Eng R* 53:220 Mr 15 '13

Labor laws

- Anti-injunction bill in New Jersey. J. A.
Emery. *Am Ind* 13:9-11 Ap '13
Educating illiterate employees. *Iron Age* 92:
861-2 O 16 '13
Foreign requirements governing work under
compressed air. P. Seurt. *Eng N* 70:566
S 18 '13
Legislation affecting the time and manner
of payment of railroad wages. A. B. Jones.
Ry Age 55:871-2 N 7 '13
New York law governing work under com-
pressed air. *Eng N* 70:307-8 Ag 14 '13
Oversight in the compressed-air law. F.
Richards. *Eng N* 70:425-6 Ag 28 '13
Recent eight-hour legislation for government
work. G. A. King. *Eng Rec* 67:526-8 My
10 '13

See also Industrial laws; Mining laws;
Workmen's compensation

- Labor-saving appliances of the modern great**
hotel. J. B. Baker. *il* *Sci Am* 109:412-3 N 29
'13

Laboratories

Laboratories of the modern factory: apparatus and investigations of the Studebaker corporation, Detroit. E. F. Lake. *il Iron Age* 92:387-91 Ag 21 '13

New laboratory for research in optics and photography. *il Sci Am S* 76:56-7 Jl 26 '13

See also Scientific research

Laboratories, Biological. *See* Biological laboratories

Laboratories, Chemical. *See* Chemical laboratories

Laboratories, Electric. *See* Electric laboratories

Laboratories, Engineering. *See* Engineering laboratories

Laboratories, Hydraulic. *See* Hydraulic laboratories

Laboratories, Metallurgical. *See* Metallurgical laboratories

Laboratories, Pedagogical. *See* Pedagogical laboratories

Laboratories, Physical. *See* Physical laboratories

Lackawanna steel company

Annual report for 1912. *Iron Age* 91:717 Mr 20 '13

Lacquer

Extinguishing of fires in lacquer with sawdust. E. A. Barrier. *Eng N* 69:217-8 Ja 30 '13; Same. *Metal Ind n s* 11:119-21 Mr '13

Use of lacquer. F. P. Davis. *Metal Ind n s* 11:113 Mr '13

See also Japanning

Ladders

Isabella knockdown iron ladder. L. H. P. Kneip. *il Eng & Min J* 96:591 S 27 '13

Safety in ladders: seven designs. F. A. Barker. *Am Ind* 13:sup 2 Ja '13

Lake Shore & Michigan Southern railroad

43d annual report, 1912. *Ry Age* 54:694-6 Mr 21 '13

Operation of the Lake Shore & Michigan Southern in 1912. map *Ry Age* 54:658-9 Mr 21 '13

Reasons for and the advantages of the New York Central-Lake Shore consolidation. *Ry Age* 55:41-3 Jl 11 '13

Lake shore electric railway

Annual reports for 1912 and 1911. *Elec Ry J* 41:342-3 F 22 '13

Lake Superior mining institute

18th annual meeting, Mesabi range, Aug., 1913. *Eng & Min J* 96:455-6 S 6 '13

Lamp posts. *See* Street lighting fixtures**Lampacitos, Mexico**

Destruction of coal-mining plant at Lampacitos. *il Eng & Min J* 96:557-8 S 20 '13

Lampblack

Modern production of lampblack: how it is automatically precipitated and collected by electricity. B. Thieme. *il Sci Am S* 76:103 Ag 16 '13

Lamps

Kaufman lighting system. *il Iron Age* 91:251-5 Ja 23 '13

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Lamps, Tungsten. *See* Electric lamps, Tungsten

Land

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Land grants

Our national resources and our federal government: discussion of paper of R. W. Raymond. *Am Inst Min E Bul* 74:319-20; 77:971-81 F. My '13

Proposed new land law. *Eng & Min J* 96:510 S 13 '13

Land tenure

Our national resources and our federal government: discussion of paper of R. W. Raymond. *Am Inst Min E Bul* 77:971-81 My '13

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Land titles

Difficulties in fixing land lines in western Pennsylvania. *Eng Rec* 67:102 Ja 25 '13

Landscape gardening

Co-operative group planning. D. E. Turn. *il plans Arch Rec* 31:167-75 N '13

See also Country homes; Parks

Landslides

Suggested method of preventing rock slides. G. S. Rice. *Ry & Eng R* 53:826-9 Ag 30 '13

Suggested methods of preventing land slides. *Eng Rec* 68:76 Jl 19 '13

Langley, Samuel Pierpont, 1834-1906

Smithsonian institution and the Aero club of Washington celebrate Langley day. *Sci Am* 108:453 My 17 '13

Langley aerodynamical laboratory

Establishment. C. H. Butman. *Sci Am* 108:538 Je 14 '13

Languages

See also Dictionaries; English language; Hieroglyphics; Synonyms and antonyms

Study and teaching

Foreign language as a tool in engineering training. F. W. Scholtz. *Concrete Cem* 2:145-7 Mr '13

French and German literature for electrical engineers. R. C. Powell; W. Whited. *Eng N* 69:1014-5 My 15 '13

New language-teaching phonograph. *il Sci Am* 109:287 O 11 '13

Study of foreign languages by engineers. R. Hering; F. Koester. *Eng N* 69:683-5 Ap 3 '13

Study of modern languages in technical schools. W. H. Herschel. *Eng N* 69:412-5 F 27 '13

Larch

Mechanical properties of western larch. O. P. M. Goss. *il U S Forest Serv Bul* 122:1-43 '13

Latches

Improved drawbridge gate latch. plan *Eng Rec* 67:212 F 22 '13

Lathe work. *See* Lathes; Turning

Lathes

Acme combination flat turret lathe. *il Iron Age* 92:1016 N 6 '13; *il Ind Eng* 13:526-7 D '13; *Ry Age (Mech ed)* 87:677 D '13

Acme universal turret lathe. *il Ind Eng* 13:315-6 Jl '13

American tool-room lathe. *il Mach* 19:59-60 S '12

Automatic threading lathe. *il plans Mach* 19:401-4 Ja '13

Automatic turret machine for machining steam radiators. C. L. Lucas. *il Mach* 20:19-50 S '13

Bar turner for Libby turret lathe. *il diag Mach* 19:30 S '12

Barnes no. 5 gap lathe. *il Mach* 19:62 S '12

Basis for measuring lathe capacity: the value of torque at one foot radius. L. R. Pomeroy. *diag Am Eng* 87:133-6 Mr '13

Conradson turret toolpost. *il diags Mach* 19:561-3 Mr '13

Designing faceplate jaws and screws for a heavy lathe. W. G. Dunkley. *diags Mach* 19:766-8 Je '13

Engine lathe with quick-change gear. *il Iron Tr R* 52:1019 My 1 '13

Geared head single pulley lathe. *il Iron Age* 92:1023 N 6 '13

Handy lathe collet. H. Kirk. *diags Am Mach* 38:289 My 22 '13

Heavy 30-in. rapid production lathe. *il Iron Age* 92:977 O 30 '13

Hjorth bench lathe attachments. *il Mach* 19:840-1 Je '13

Increasing axle lathe output. C. L. Dickert. *plans Am Eng* 87:34 Ja '13

Ingenious lathe attachments. *il Iron Tr R* 52:1020-1 My 1 '13

Large motor-driven lathe. *il Iron Age* 91:1008 Ap 24 '13

Lathe designed and built in Idaho. C. D. Michener. *il Am Mach* 38:782-3 My 8 '13

Lathes—Continued.

- Lodge & Shipley selective head lathe, il Iron Age 91:1531-5 Je 26 '13; Mach 19:902-4 Jl '13
- Lo-swing lathe improvements, il diag Iron Age 91:938-9 Ap 17 '13
- Lo-swing lathe test on motor armature shafts, il Mach 19:623-5 Ap '13
- Model driving wheel lathe, il Ry Age (Mech ed) 87:336-7 Je '13
- Modern lathe turret lathe, il diag Mach 20: 228-9 D '13
- New material for lathe tools, E. Haynes, il Mach 19:463 F '13
- Old lathe, E. A. Suverkrop, il Am Mach 38: 741-2 My 1 '13
- Oval turning device for the lathe, F. E. Ross, il Am Mach 38:729-31 My 1 '13
- Precision lathe as a manufacturing machine, il diag Mach 19:788 Je '13
- Recent quick change gear engine lathe, Iron Age 91:662 My 1 '13
- Roughing lathe for heavy forgings, il Iron Tr R 53:1011 D 4 '13
- Sixteen-inch Cincinnati engine lathe, il Mach 19:730-1 My '13
- Special lathe for turning tapers, il Iron Age 92:447 Ag 22 '13
- Taper boring and turning attachments, A. A. Dowd, diags Mach 20:265-71 D '13
- Thirty inch rapid reduction lathe, il Eng M 46:sup 12-4 D '13
- Turning tapers on a lathe, F. W. Roth, Am Mach 38:778 My 8 '13
- Turret lathe set-up for a small screw, diags Mach 20:51-2 S '13
- 20-in. geared head lathe, il Iron Age 91:1355 Je 5 '13
- 26-in. cross slide flat turret lathe, il plan Iron Age 92:1266-7 N 27 '13
- Undulator, a modified reciprocator for ornamental lathes, A. S. Rogers, il Sci Am S 76:14-6 Jl 5 '13
- Unusual method of supporting lathe saddle, diag Mach 19:546-7 Mr '13
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- Relaunching a vessel on the river Clyde, G. K. Turnbull, il Int Marine Eng 18:148-9 Ap '13

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- Design in plumbing fixtures; laundry trays, F. W. Tower, diags Dom Eng 65:78 O 18 '13

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- Lava fountains of Kilauea, F. A. Perret, il Sci Am S 75:332-3 My 24 '13
- See also* Rocks, Igneous

Laval, Gustav de, 1845-1913

- Gustav de Laval, Sci Am 108:262 Mr 22 '13

Lavatories

- Design in plumbing fixtures; lavatories, F. W. Tower, Dom Eng 65:77-8 O 18 '13

Law

- See also* Accountants, Public—Law; Appraising; Building laws; Carriers; Copyright; Damages; Electric engineering—Law; Electric railways—Law; Engineering law; Franchises; Highway law; Industrial laws; Injunctions; Labor laws; Legislation; Maritime law; Mechanics' liens; Mining laws; Negligence; Patent laws; Patents; Personal injuries; Railroad law; Street railroad law; Trespass; Water laws and legislation; Workmen's compensation

Leaching. *See* Hydrometallurgy**Lead**

- Corrosion of lead, R. H. Gaines, Eng Rec 67:685-6 Je 21 '13
- Determination of lead in unchilled slags, R. T. Wilder, Eng & Min J 96:695-6 O 11 '13
- Lead schedule, Eng & Min J 96:368 Ag 23 '13
- Origin and peculiarities of lead, J. Scott, il Metal Ind n s 11:34-5 Ja '13
- Production of lead in 1912, Eng & Min J 95: 65-8; 96:319 Ja 11, Ag 16 '13

- St. Joseph lead co. report for year ended April 30, 1913, Eng & Min J 95:1181-2 Je 11 '13

- Use of lead in the tropics, W. H. Mawdsley, Eng & Min J 96:1068 D 6 '13

- See also* Lead metallurgy; Lead mines and mining; Lead poisoning; Linotype metal; Pewter; White lead

Lead fluosilicate

- Conductivity of fluosilicic acid and lead fluosilicate, T. A. Patterson, Met & Chem Eng 11:670-2 D '13

Lead metallurgy

- Development of the American water-jacket lead blast-furnace, R. C. Canby, Am Inst Min E Bul 75:363-8 Mr '13
- Historical note on smelting lead and silver, Eng & Min J 96:169-70 Jl 26 '13
- Improvements in the metallurgy of lead, Met & Chem Eng 11:5 Ja '13
- Metallurgy of lead in 1912, H. O. Hofman, Eng & Min J 95:97-8 Ja 11 '13
- Milling in southeastern Missouri, C. T. Rice, il diags Eng & Min J 95:1229-32, 1283-8; 96:7-14, 57-64 Je 21-Jl 12 '13
- Notes on the bag-house in connection with lead blast-furnaces and leady copper-matte converters, A. Eilers, diags Am Inst Min E Bul 73:85-112 Ja '13

Lead mines and mining**Colorado**

- Lead and zinc mining in Colorado, G. E. Collins, Eng & Min J 95:74 Ja 11 '13

Idaho

- Coeur d'Alene district, Idaho; and Other Idaho districts, Eng & Min J 95:67-8 Ja 11 '13

- Lead-silver of Gilmore, Lemhi county, R. Nichols, Am Inst Min E Bul 83:2625-7 N '13

Iowa

- Oldest lead mining in the United States, Dubuque, C. R. Keyes, Eng & Min J 95:176 Ja 18 '13

Missouri

- Mining and mining methods in the southeast Missouri disseminated-lead district, H. A. Guess, il map Am Inst Min E Bul 84:2749-68 D '13

- Southeastern Missouri, H. A. Wheeler, Eng & Min J 95:68 Ja 11 '13

New Mexico

- Lucky Bill-lead vanadium mine, New Mexico, P. A. Larsh, il Eng & Min J 96:1193-5 D 13 '13

Oklahoma

- Lead and zinc in Oklahoma, L. C. Snider, Eng & Min J 95:74-5 Ja 11 '13

Lead poisoning

- Hazards of painting, Eng Rec 68:509 N 8 '13

Lead sulphate. *See* White lead**Lead work**

- Disease of old leaden art objects, J. Boyer, il Sci Am 109:382 N 15 '13

Learning and scholarship

- Embroidery of knowledge, Sci Am 108:486 My 31 '13

Leases. *See* Mineral lands**Leather**

- Leather investigations: the composition of some sole leathers, F. P. Veitch and J. S. Rogers, U S Bur Chem Bul 165:7-20 '13

- Pneumatic cylinder-packing leathers, F. W. Bentley, jr, il diags Power 38:498-9 O 7 '13

- See also* Belting; Tanning

Leaves

- Formation of leafmold; production of humus, F. V. Colville, Sci Am S 75: 386-7 Je 21 '13

Leduc, Stéphane

- Dead matter that seems alive; synthetic ideas about life, B. C. Gruenberg, il Sci Am 109:93 Ag 2 '13

Leg, Artificial. *See* Artificial limbs

Legislation

Business men must organize for legislation. Iron Tr R 53:1101-6 D 18 '13

Lehigh Valley railroad

Condition of the Lehigh Valley. map Ry Age 55:181-5 S 19 '13

50th annual report for year ending June 30, 1913. Ry Age 55:515-8 S 19 '13

Lehigh Valley transit company, Allentown, Pa.

Annual reports for 1912 and 1911. Elec Ry J 41:343-4 F 22 '13

Leipzig. International building exposition, 1913

Exposition of architecture and building. il Sci Am S 76:88-9 Ag 9 '13

International building exposition in Leipzig. Sci Am 108:200 Mr 1 '13

Remarkable review of building methods old and new. R. Grimshaw. il Sci Am 109:112-3 Ag 9 '13

Lenape (steamboat)

Clyde line coastwise steamship Lenape. il plans Int Marine Eng 18:139-44 Ap '13

Lenses

Armstrong spheroidal lens. il Ry Age 55:502 S 19 '13

Dodges with lenses and tripod stands. Sci Am S 76:301 N 8 '13

Modern microscopical optics: the limitations of the microscope. C. Metz. Sci Am S 75:162-3 Mr 15 '13

Lentz steam engine. S. Rosenzweig. il plan

Ind Eng 13:64-6 F '13

Leprosy

Research on leprosy. Sci Am 108:534 Je 14 '13

Letter-heads

Composition of a letter-head. Inland Ptr 52:243-7 N '13

Lettering

Lettering and the architect. W. Heyny. il Arch & Bldg 45:8-16, 62-4, 97-9, 133-5, 187-8, 300-1, 347-8, 435-6, 196-7 Ja-May, Jl, O-D '13

Levees

Alternative propositions for control of the Mississippi. W. Parker. Sci Am 108: 267 Mr 22 '13

Careful tamping an important factor in levee building. A. M. Shaw. Eng N 69:1339-40 Je 26 '13

Clam-shell dredges; levee building methods and standards in California. F. H. Tibbetts. il map Eng N 70:456-9 S 4 '13

Closure of Beulah levee crevasse. Miss. A. L. Dabney. il plan Eng Rec 68:4-7 Jl 5 '13

Concrete slabs in levee construction. E. B. Murray. il Concrete Cem 1:80-2 D '12

Control of the Mississippi floods. C. D. Townsend. il Sci Am S 75:282 My 3 '13

Controlling the Mississippi river: why the levee system is superior to all other proposed methods. C. M. Townsend. Sci Am S 75:6-7 Ja 4 '13

Floods and levees at Cairo, Ill. il map plan Eng N 70:104-7 Jl 17 '13

Notes on flood in the lower Mississippi. A. L. Dabney. Eng N 69:965-6 My 8 '13

Problem of flood control. C. M. Townsend. Eng N 69:802-3 Ap 17 '13

Results of recent flood at Columbus; damages to bridges and levees and plans for improving river channels. J. J. Morgan. il map Eng Rec 67:444-5 Ap 19 '13

Sheet-pile cut-off for the protection of levee foundations. C. O. Sherrill. Eng N 69:247 F 6 '13

Sloughing off of Mississippi levee at Helena, Ark. il map Eng N 70:1011-7 N 20 '13

See also Flood control; Rivers—Regulation

Leveling

Precise level net of the United States. W. Bowie. Eng N 69:775 Ap 17 '13

Precise leveling in New York city. F. W. Koop. map Eng N 70:446-52 S 4 '13

What is a leveler, and why? Eng N 70:1141-2, 1252-3 D 4, 18 '13

See also Surveying

Liability insurance. See Insurance, Employers' liability

Liberty Bell gold mining co., Telluride, Colo. Unit costs. Eng & Min J 96:1975-6 D 6 '13

Libraries

Library illumination. F. A. Vaughn. il Elec W 61:1316-8 Je 14 '13

Special resources of American libraries. Sci Am 108:55 Ja 11 '13

See also Engineering libraries; Library architecture

Libraries, Architectural. See Architectural libraries

Library architecture

Design of the Avery architectural library, Columbia university. C. M. Price. il plans Arch Rec 33:533-49 Je '13

Licenses for engineers. See Engineers—Licenses

Life

Dead matter that seems alive: synthetic ideas about life. B. C. Gruenberg. il Sci Am 109:93 Ag 2 '13

Life without heat. Sci Am 108:370 Ap 26 '13

Physical basis of life: laboratory models of living organisms. il Sci Am S 76:77 Ag 2 '13

Life-boats. See Lifeboats

Life-saving apparatus

His mattress a life raft. il Sci Am 108:90 Ja 25 '13

Oxygen fed and driven device for artificial respiration. il Sci Am 108:117 F 1 '13

Rescue apparatus for crew of a wrecked submarine. A. Gradenwitz. il Sci Am 109:338 N 22 '13

Why the cost of life-saving appliances on American ships has increased. W. D. Forbes. Int Marine Eng 18:127-8 Mr '13

See also Lifeboats; Safety at sea

Lifeboats

Bigger life-boats for ocean liners. Sci Am 109:138 Ag 23 '13

Fifth award of the Scientific American medal. il Sci Am 109:165 D 20 '13

Lifeboats on lake steamers. Sci Am 109:424 D 6 '13

Life boats on the Emperor. il Int Marine Eng 18:364 Ag '13

Lifeboats which can be launched on either beam. il Sci Am 108:511 Je 7 '13

Lundin decked lifeboat. il Sci Am 108:272-3 Mr 22 '13

New davits for lifeboats; characteristics of the Babcock and Wilcox boat-lowering gear. il Eng M 46:124-6 O '13

Power lifeboats—the Lundin decked type. il Int Marine Eng 18:248-51 Je '13

Ship's lifeboats. A. Welin. il plan Eng M 45:571-4 Jl '13

Lifting magnets

Electric power in foundry operations. II. F. Stratton. il Iron Tr R 53:922-3 N 20 '13

Same. Foundry 41:412-3 O '13

Light

Chemical production of light. W. D. Bancroft. J Fr Inst 175:129-49 F '13; Same. Sci Am S 76:251-6 O 18 '13

Distribution of luminosity in nature. H. E. Ives and M. Luckiesh. il Sci Am S 76:204 S 27 '13

Effects of radiation on the eye. Elec W 61:1097 My 24 '13

Influence of colored surroundings on the color of the useful light. Elec W 61:410-1 F 22 '13

Mixing colors in light versus colors in pigments. Elec W 62:1166 D 6 '13

New laboratory for research in optics and photography. il Sci Am S 76:56-7 Jl 26 '13

Radiation pressure: its nature and significance. W. C. Morris. Sci Am S 76:18-9 Jl 12 '13

Visual acuity in white light. M. Luckiesh. Elec W 62:1166 D 6 '13

See also Absorption of light; Color; Daylight; Artificial; Eye; Headlights; Interference (light); Lighting; Optical illusions; Photography; Photometry; Radiation; Radioactivity; Reflection (light); Spectra; Spectrum analysis; X rays

Light, Absorption of. See Absorption of light

Lighthouses

- Lighthouses and buoys of New York harbor. J. Pattison. *il Int Marine Eng* 18:1-4 Ja '13; Same. *Sci Am* S 75:136-8 Mr 1 '13
Reinforced-concrete beacon tower, Alexandria, Egypt. *il plan Eng* N 69:730-2 Ap 10 '13

See also Lightships

Lighting

- Advances in illumination. *Eng Rec* 67:423 Ap 19 '13
Cellar space made available by the use of prismatic glass. J. Chittick. *il Sci Am* S 76:107 Ag 16 '13
Contrast in illumination. J. R. Cravath. *Elec W* 61:1262-4 Je 7 '13
Economics of factory lighting. *Eng Rec* 68:422 O 18 '13
Eye as a judge of uniform illumination. J. R. Cravath. *Elec W* 62:1118 N 29 '13
Foundry and workshop lighting. A. Kitson. *il Metal Ind n s* 11:383-5 S '13
Graphic solution for illumination problems. N. S. Dickinson. *Elec W* 62:586-9 S 20 '13
Illumination and eye strain. E. M. Alger. *Iron Tr R* 52:743-4 Mr 27 '13
Illumination of docks and wharves. *il Int Marine Eng* 18:383-4 S '13
Illumination of interiors. P. S. Millar. *il Sci Am* S 76:328-30 N 22 '13
Illumination of large buildings. *plan Elec W* 61:993-4 My 10 '13
Illumination topics at International school hygiene congress, 1913. *Elec W* 62:464-6 S 6 '13
Industrial lighting. E. L. Elliott. *Ind Eng* 13:15-8, 102-5, 174-5, 310-1, Ja, Mr-Apr, Jl '13
Industrial lighting. C. L. Esbleman. *il Am Inst E E Pro* 22:41-54 Ja '13
Industrial lighting by incandescent lamps; requirements of shop and factory illumination, method and cost. W. Harrison. *il Elec W* 62:1001-5 N 15 '13
Industrial lighting; daylight illumination. *il Sci Am* S 76:117-8 Ag 23 '13
Intensities of natural and artificial light required for reading. J. R. Cravath. *Elec W* 62:38 Jl 5 '13
Investigation of diffusing glassware. M. Lucklesch. *plan Elec W* 61:883-4 Ap 26 '13
Kaufman lighting system. *il Iron Age* 91:254-5 Ja 23 '13
Lighting specification for full postal cars. *Ry & Eng R* 53:63-4 Ja 13 '13
Lighting the operating tunnels and machine rooms of the Panama canal locks. *plan Eng* N 69:977 My 8 '13
Marine lighting equipment of the Panama canal. J. Pattison. *diags Eng* N 69:1057-9 My 22 '13
Measurement of lights of different colors. *Sci Am* 109:89 Ag 2 '13
Philadelphia specifications for alley and suburban lighting. *Munic Eng* 45:374-6 O '13
Problems of illumination discussed at Milwaukee joint meeting, 1913. *Elec W* 61:439-40 Mr 1 '13
Progress in public lighting. *Munic Eng* 45:467-70 N '13
Recent progress in illuminating engineering. *Eng Rec* 68:367 O 4 '13
Tendencies in illuminating engineering. L. B. Marks. *Elec W* 61:16-8 Ja 4 '13
Testing shadow effects of various systems of lighting. *il Elec W* 61:888 Ap 26 '13
Types and uses of semi-indirect lighting units. L. V. James. *il diags Elec W* 62:905-6 N 1 '13
What do we know about lighting? F. L. Godinez. *il Arch Rec* 33:255-61, 369-78, 457-68, 574-9; 34:264-9, 373-82. Mr-Je, S-O '13
White screens before audiences. J. R. Cravath. *Elec W* 61:1177 My 31 '13
Wisconsin orders on shop lighting. *Eng & Min J* 95:1202-3 Je 14 '13
See also Automobiles—Lighting; Car lighting; Daylight, Artificial; Electric light fixtures; Electric lighting; Gas lighting; Headlights; Lamps; Lighthouses; Locomotive headlights; Petroleum; Photometry; Street lighting

Lighting fixtures

- Lighting fixtures for postal cars. *il Ry Age* 51:681-2 Mr 21 '13; Same cond. *Am Eng* 87:218-9 Ap '13
What do we know about lighting? F. L. Godinez. *il Arch Rec* 33:255-61, 369-78, 457-68 Mr-Je '13

See also Street lighting fixtures

Lighting of churches. See Church lighting

Lighting of streets. See Street lighting

Lightning

- Lightning-prints: pathology of lightning stroke. C. F. Talman. *il Sci Am* 108:576 Je 28 '13
Lightning protection of buildings. E. J. Berg. *Eng N* 69:240-2 F 6 '13; Same. *il Sci Am* S 75:159-60 Mr 8 '13; Excerpts. *Eng M* 45:873-6 S '13
Stereoscopic views of lightning. *il Sci Am* 108:265 Mr 22 '13
See also Lightning protection; Thunderstorms

Lightning arresters

- Aluminum-cell lightning arrester. J. A. Randolph. *diags Power* 38:362-4 S 9 '13
Lightning protection. *Power* 38:166 Jl 29 '13

Lightning protection

- Lightning protection of buildings. E. J. Berg. *il Eng N* 69:240-2 F 6 '13; Same. *Sci Am* S 75:159-60 Mr 8 '13; Excerpts. *Eng M* 45:873-6 S '13
Lightning protection of explosive works. *Sci Am* S 76:227 O 11 '13

Lightships

- Motor lightship Bürgermeister O'Swald. J. R. Wilson. *il plan Int Marine Eng* 18:155-7 Ap '13
Steel harbor lighter Willard U. Taylor. *il plan Int Marine Eng* 18:162 Ap '13

Lignite

- Experiments with North Dakota lignite in a steam power plant and a gas producer; discussion of paper by C. H. Crouch. *Am Soc M E J* 35:681-6 Ap '13
Lignite as a fuel for gas producers. G. W. Muench. *Power* 38:366-7 S 9 '13
Lignite coal testing plant at Estevan, Sask. *Rv Age* 55:1121-2 D 12 '13
Lignite fields. *il Am Ind* 14:28-9 N '13
Lignite mining at Hoyt, Texas. *il Colliery* 34:93-4 S '13

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Lima, Ohio

- Flood protection. *Eng N* 70:828 O 23 '13

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Lime

- Air-slaked lime not a substitute for hydrated lime in stucco work. *Concrete Cem* 3:118 S '13
Hydrated lime, and its use; discussions by R. K. Meade and R. R. Newman. *Concrete Cem* 1:89 D '12
Hydrated lime—what it is, and how used. R. K. Meade. *Concrete Cem* 3:208-9 N '13
Lime sterilization of water. C. P. Hoover. *Eng Rec* 68:257-9 S 6 '13
Modern cement and hydrated lime plant. Union Bridge, Md. R. K. Meade. *il plan Eng N* 70:859-60 O 30 '13
Storing lime for water softening at Columbus. C. P. Hoover and C. J. Clarke. *il plan Eng Rec* 68:9-11 Jl 5 '13
Use of hydraulic lime for masonry dam. *Eng Rec* 67:659 Je 14 '13

See also Cement; Concrete

Limestone

- Experiments on the weathering of limestone. *Eng Rec* 67:164 F 8 '13

Limonite

- Pipe ore, secondary limonite. *Mines & Min* 33:329 Ja '13

Lincoln highway

- Clubs and individuals contribute to Lincoln highway. *Automobile* 29:395 Ag 28 '13
Route for Lincoln highway. *Automobile* 29:502-3 S 18 '13

- Linen**
See also Textile industry and fabrics
- Links**
Best form of link. A. T. Kasley; W. G. Hawley. Power 37:871-2 Je 17 '13
- Linotype**
Are transpositions machine errors or operators' errors? C. S. Gunn. Inland Ptr 52: 395-6 D '13
Composing pictorial designs on the linotype. Il Inland Ptr 51:132 Je '13
Linotype efficiency. Inland Ptr 51:70 Ap '13
Machine composition. J. S. Thompson. See monthly numbers of the Inland printer
- Linotype metal**
Depreciation of linotype metal. C. F. McElroy. Inland Ptr 51:229-30 My '13
- Linseed oil**
Effect of pigments on the constants of linseed oil. H. A. Gardner. Am Eng 87:188-9 Ap '13
- Liquefaction of gases**
Cold in nature and in science: extremes of temperature in cosmic space and in the laboratory. Sci Am S 76:50-1 J1 26 '13
Condensation of zinc gas to liquid, in the presence of inert gas. F. L. Clerc. Il Met & Chem Eng 11:637-40 N '13
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- Liquid air**
Blasting with liquid air. Il Sci Am 108:564 Je 21 '13
Liquid air industry. Sci Am S 76:27 J1 12 '13
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- Liquid fuel**
Fuel for oil engines; qualities required. Sci Am S 75:411 Je 28 '13
Fuels for Diesel engines. Power 38:753-5 N 25 '13
Pumping and heating of oil fuel. R. T. Stromm. diags Elec W 62:650-2 S 27 '13
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- Liquid meters**
Development in V-notch recording meter. J. Escherich. Il diags Power 38:85-7 J1 15 '13
Liquid meter of the measuring tank type. plan Eng N 69:555 Mr 20 '13
- Liquids**
Experiments on liquid drops. C. R. Darling. Il Sci Am S 75:236 Ap 12 '13
Experiments on liquid globules and columns: motions displayed by drops of liquid. C. R. Darling. Il Sci Am S 75:340-1 My 31 '13
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Liquor in construction camps. C. E. Fisher. Ry & Eng R 53:205-6 Mr 8 '13
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- Lithia**
Lithia deposits of the Black Hills. V. Ziegler. Il Eng & Min J 96:1053-6 D 6 '13
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Determination of lithium. Eng & Min J 96: 503-4 S 13 '13
- Liverpool, England**
New Liverpool docks. T. Osborne. Int Marine Eng 18:431-2 O '13
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Equivalent uniform loads on bridges for different types of engine. diags Eng N 70: 824-5 O 23 '13
Kinetic effects of crowds: the forces due to movements of live load. C. J. Tilden. Il Sci Am S 76:172-5 S 13 '13
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Large canal locks at Lockport, N.Y. E. Low. Il plan Eng Rec 67:661-3 Je 14 '13
Centralized control systems for Panama locks. Il Eng Rec 68:730-1 D 27 '13
Chain tenders for the Panama canal: details of the hydraulically operated devices for bringing ships to rest. Il plan Iron Age 52:21-6 Ag 7 '13
Control equipment for the Panama canal locks. Il Elec W 62:1317-20 D 27 '13
Electrical equipment of Charles river locks. Il diags Elec W 61:1355-61 Je 21 '13
Erection of Panama canal lock gates: assembling 630-ton gates with overhead locomotive cranes. Il diags Eng Rec 68:513-5 N 8 '13
Lock and drydock at Keokuk, Iowa. Il plans Eng Rec 68:88-92 J1 26 '13
Lock gates for the Panama canal. Il plan Eng Rec 67:228-31 Mr 1 '13
Mississippi lock at Keokuk. Il plans Eng N 70:261-72 N 13 '13
Ohio river locks at Louisville. Il plans Eng N 70:1238-44 D 18 '13
Operating-control system of the Panama canal locks. Il diag Eng N 70:1323-9 D 25 '13
Panama canal; some interesting mechanical features. F. D. Jones. Il map diags Mach 19:572-9 Ap '13
Timber buffers for protecting vessels entering the Panama canal locks. diags Eng N 70:306-7 Ag 14 '13
- Locks and keys**
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- Locomobiles, German**
Locomobiles on the uniflow system. A. Gradenwitz. Il Power 38:714-5 N 18 '13
Uniflow cylinder adapted to locomobiles. W. H. Miller. Il Elec W 62:689-90 O 4 '13
- Locomotive boilers**
Advantages of the brick arch. L. G. Parish. Ry Age (Mech ed) 87:473-6 S '13; Same cond. Ry Age 55:335-6 Ag 22 '13
Annual report of chief inspector of locomotive boilers for year ending June 30, 1913. Ry Age 55:1233-4 D 26 '13
Boiler explosions as affected by unsymmetrical riveted joints. Eng N 69:308 F 13 '13
Boiler inspection and operation. F. McManamy. R & Eng R 53:522-6 Je 7 '13
Boiler inspection report. Ry & Eng R 53:28 Ja 11 '13
Boiler inspector's first annual report. Ry & Eng R 53:12 Ja 4 '13
Brick arch as a factor in locomotive boiler performance. plans Ry & Eng R 53:193 Mr 1 '13
Circulation of water in locomotive boilers. G. L. Fowler. plan Ry & Eng R 53:126-8 F 8 '13
Combustion in locomotive practice. J. T. Anthony. diags Ry Age 54:1220-5 Je 6 '13
Flue efficiency and locomotive maintenance costs. Ry & Eng R 53:533 Je 7 '13
Form of thread and degree of taper for boiler studs and plugs: symposium. Ry Age (Mech ed) 87:435-6 Ag '13
Locomotive boiler inspection. Ry Age 54:1070-1 My 16 '13
Locomotive boiler inspection. G. P. Robinson. Il Ry & Eng R 53:646-9 J1 5 '13
Locomotive boiler tube tools for application and maintenance of all tubes, including those for superheaters and brick arches. W. R. Hedeman. Il plans Am Eng 87:23-9 Ja '13
Oil firing in bad water districts. Ry & Eng R 53:53 Ja 18 '13
Peculiar explosion of locomotive boiler. Il Power 37:560-1 Ap 22 '13

Locomotive boilers. Continued.

- Report of the federal boiler inspector. Ry Age 54:135-6 Ja 21 '13
 Safety devices for locomotive boilers. diags Ry Age (Mech ed) 87:333-5 Je '13
 Safety type of locomotive boiler. Eng N 69: 317-8 F 13 '13
 Sealing of locomotive boilers. Ry Age (Mech ed) 87:295-6 Je '13
 Scrapping locomotive boilers with the oxy-acetylene torch. P. Pleiss. il Ry Age (Mech ed) 87:692-3 N '13
 Service of the Brotan boiler. diags Am Eng 87:128-9 Mr '13
 Statistics of locomotive boiler accidents for year ending Je. 30, 1912, from boiler inspector's annual report. Ry & Eng R 53:14 Ja 4 '13
 Welding locomotive boiler tubes. Power 38: 109-10 Jl 15 '13

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Testing

- Comparative tests of locomotive boilers equipped with the Jacobs-Shupert and the radial-stay fireboxes. il plans Ry & Eng R 53:118-20, 170-4 F 8, 22 '13
 Jacobs-Shupert boiler tests. W. F. M. Goss. Ry Age 51:784-5 Ap 4 '13
 Jacobs-Shupert firebox tests. Ry & Eng R 53:124-5 F 8 '13
 Location of steam gages in setting safety valves. C. T. Rommel. diags Ry Age (Mech ed) 87:533-6 O '13
 Results of comparative firebox tests at Coatsville, Pa. Ry Age 54:251-3 F 7 '13
 Tests of Jacobs-Shupert boiler. diags Am Eng 87: 63-7 F '13; Ry Age 54:385-6 F 28 '13

Locomotive cabs

- Cab window ventilator. diags Ry Age 55: 1128 D 12 '13
 Locomotive cab furnishings. A. B. Lawson. diags Am Eng 87:241-2 My '13

Locomotive engineers

- Locomotive runners tell how they run. Ry Age 55:1009-12 N 28 '13
 Points on running a locomotive safely. Ry Age 55:1155-8 D 19 '13
 Rules for keeping a lookout on a busy road. E. F. McKenzie. Ry Age 55:991-2 N 14 '13
 To make competent engineers. Ry Age 54:1594-5 Je 27 '13
 21st annual convention of the Traveling engineers' assn. discusses operating department and fuel economy; superheaters; brick arches; smoke prevention; locomotive brake equipment. Ry Age 55:331-8 Ag 22 '13; Ry Age (Mech ed) 87:467-78 S '13

Locomotive fireboxes

- Autogenous welding in locomotive fireboxes. N. H. Ahlsoult. diags Ry Age (Mech ed) 87:670-2 D '13
 Gaines firebox on the Illinois Central. il diags Ry Age (Mech ed) 87:362-5 Jl '13
 Life of locomotive fireboxes. C. T. Rommel. il diags Ry Age 55:91-4 Jl 18 '13

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- Design of locomotive grates. W. R. Hedeman. diags Ry Age (Mech ed) 87:585-8 N '13

Locomotive headlights

- Deflectable headlight. J. R. Pratt. il Ry Age 55:645-6 O 10 '13
 Electric arc headlight for locomotives; its advantages and disadvantages. J. G. D. Mack. Sci Am S 75:78-9 F 1 '13
 Final report of the Block signal and train control board, 1912. Ry & Eng R 53:213 Mr 8 '13
 Fundamental principles of head-lamp illumination. L. C. Porter and K. W. Mackall. diags Elec W 62:141-2 Jl 19 '13

- Installation and maintenance of electric headlight equipment. V. T. Kropidowski. diags Ry Age (Mech ed) 87:367-8, 429-30, 546-9, 603-5 Jl-Ag, O-N '13
 Locomotive headlight laws. Ry Age (Mech ed) 87:588 N '13
 Performance of incandescent head-lamps. L. C. Porter. Elec W 62:744-5 O 11 '13
 Plating and refinishing railroad locomotive headlight reflectors in nickel. C. H. Proctor. Metal Ind n s 11:201-2 My '13
 Report on locomotive headlights by the Wisconsin railroad commission. Eng N 69:7 Ja 2 '13

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- Engine house efficiency. Ry Age 55:153-4 Jl 25 '13
 Engine house efficiency. Ry & Eng R 53:736-8 Ag 2 '13
 Engine house organization and operation. W. Smith. Ry Age (Mech ed) 87:597-602 N '13
 Forms for locomotive operation and cost; office records that give index of shop and roundhouse conditions. A. V. Heckman. Am Eng 87:124-8 Mr '13
 Heat treating plant, Juniata shops, Pennsylvania railroad. plans Ry & Eng R 53: 1159 D 27 '13
 Laying off shoes and wedges. E. T. Spidy. Ry Age (Mech ed) 87:307-8 Je '13
 Locomotive repair plant, Wabash railroad, Decatur, Ill. il plans Ry & Eng R 53:1033-6 N 8 '13
 Locomotive shop kinks. L. D. Freeman. plans Am Eng 87:21-2 Ja '13
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 New locomotive repair shop, Elgin, Joliet & Eastern Ry., Joliet, Ill. il plans Ry & Eng R 53:927-30 O 4 '13
 Schedules for locomotive repairs; routing system in repair shops. H. Gardner. il Eng M 41:417-21 D '12
 Scheduling work in the railroad repair shop. E. Cordeau. Eng M 44:191-8 N '12
 Shop output. J. H. Tinker. Ry Age (Mech ed) 87:666-8 D '13; Same. Ry & Eng R 53:1295-7 D 27 '13; Same cond. Ry Age 55: 1018-9 N 28 '13

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- Engine terminal of Baltimore & Ohio railroad at Cumberland. il plan Eng Rec 68: 411-2 O 11 '13
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 Locomotive terminals and repair facilities of the Northern Pacific Ry. in Washington. il plans Ry & Eng R 53:519-22 Je 7 '13
 Mechanical terminal for Illinois Central. W. Doud. il plans Ry Age (Mech ed) 87:353-61 Jl '13
 Mechanical terminal for Illinois Central at Centralia. il plans Ry Age 54:1597-1604 Je 27 '13
 New engine terminals on the Western Maryland. G. E. Lemmerich. plans Ry Age 55: 189-90 Ag 1 '13

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- New design of Hodges trailing truck applied to Pacific type locomotives. diags Am Eng 87: 74 F '13
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- Slovenly whistling. W. R. Shaw. Ry Age 54: 744 Mr 28 '13

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- Improved throttle lever rigging, diags Ry Age (Mech ed) 8:331 Je '13
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- Atlantic type inspection locomotive, il diags Ry Age 53:194-5 S 5 '13
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 Baltic type locomotive, il Am Eng 87:199 Ap '13
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 Canadian Pacific 1-6-2 type locomotive equipped with enclosed vestibule cab and combined tender tank and underframe, W. H. Winterrowd, il plans Am Eng 84:117-21 Mr '13
 Centenary of a famous locomotive, H. T. Walker, il Sci Am 109:239 S 20 '13
 Combustion in locomotive practice, J. T. Anthony, diags Ry Age 54:1229-5 Je 6 '13
 Compound locomotives and superheat, Sci Am S 15:497 Je 28 '13
 Consolidation and ten-wheel locomotives for the St. Louis Southwestern Ry., il diags Ry & Eng R 53:891 Ag 23 '13
 Consolidation locomotives for the Wheeling & Lake Erie railroad, il plans Ry & Eng R 53:1121-2 D 6 '13
 Curves of locomotive operation, L. R. Pomeroy, diag Am Eng 87:68-79 F '13
 Design of counterbalance weights, C. E. Bronson, Ry Age (Mech ed) 8:529-30 O '13
 Distribution of power in Mallets; valve setting and cylinder ratios when the weight on the two groups of drivers is unequal, P. Weeks, Am Eng 87:237-41 My '13
 Engine house organization and operation, W. Smith, Ry Age (Mech ed) 87:597-602 N '13
 Factors in the selection of locomotives discussed by American society of mechanical engineers, Am Eng 87:9-15 Ja '13
 Factors in the selection of locomotives in relation to the economics of railway operation, O. S. Beyer, jr., Am Soc M E J 35: 1-21 Ja '13
 Feed-water heating for locomotives, il Power 38:387-9 S 16 '13
 4-8-2 type for Missouri Pacific, il diags Ry Age (Mech ed) 87:583-5 N '13
 Garratt articulated locomotives, il Eng M 44:341-3 Mr '13
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 Heavy switching locomotive with side sandboxes, il Eng N 69:239 F 6 '13
 Impressions of German railway practice; handling of locomotives at terminals, economizing of fuel and care of employees, H. W. Jacobs, Ry Age 54:25-6 Ja 3 '13
 Inspection locomotive on the Reading, il diags Ry Age (Mech ed) 87:479-82 S '13
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 Mikado locomotive for the Lake Shore & Michigan Southern Ry., il diags Ry & Eng R 53:431-2 My 10 '13
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 Mountain type locomotives for the Missouri Pacific Ry., il plans Ry & Eng R 53:1013-4 N 1 '13
 Narrow gage equipment for the East Broad Top railroad & coal co. il Ry Age 51:1606-7 Je 27 '13
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 Pacific type locomotive for the Pennsylvania lines west of Pittsburgh, il diags Ry & Eng R 53:934-5 O 1 '13
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 Service recorder, Ry Age 54:1610 Je 27 '13
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Slater front end, il plans Am Eng 87:7-8 Ja '13

Special features of new locomotives for the Atchison, Topeka & Santa Fe Ry. il Eng N 70:279-80 Ag 14 '13

Steam versus electric locomotives. R. V. Macaulay. Eng M 44:434-6 D '12

Superheated locomotives. P. C. Linck. Ry Age (Mech ed) 87:416-7 Ag '13

Superheating and feed water heating; theoretical discussion checked by results on Egyptian state railways. F. H. Trevithick and P. J. Cowan. Ry Age 54:1543-8 Je 20 '13

Switching locomotive data. Ry & Eng R 53:923 O 4 '13

Switching locomotives for the Illinois Central R. R. il plan Ry & Eng R 53:181-2 Mr 1 '13

Switching locomotives for the Monongahela connecting R. R. il Ry & Eng R 53:830 Ag 30 '13

Tabular comparison of Pacific type locomotives built by the American locomotive co. Ry & Eng R 53:126-7 D 6 '13

Tabular comparison of recent locomotives of the Atlantic, ten-wheel, mogul and switching types. Am Eng 87:19 Ja '13

Tabular comparison of recent simple freight locomotives. Am Eng 87:72 F '13

Tabular comparison of typical locomotives of the Mallet articulated type. Am Eng 87:73 F '13

Tabular comparison of typical locomotives of the mountain, Pacific and prairie types. Am Eng 87:18 Ja '13

Three-cylinder locomotives. J. S. Bell. diags Ry & Eng R 53:591-5 Je 21 '13

Traveling engineers' assn., 21st annual convention, Chicago, August, 1913. Ry & Eng R 53:779-81, 785-8 Ag 16 '13

Vanadium steel and its application in locomotive construction. G. L. Norris. Ry & Eng R 53:894-5 S 20 '13; Excerpts. Eng N 70:634 S 25 '13

See also Electric locomotives; Locomotive boilers; Locomotive fireboxes; Locomotive grates; Locomotive headlights; Locomotive trucks; Railroads; Steam engines; Stokers. Mechanical; Tires (locomotive); Traction engines; Water gage glasses

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Q-R locomotive brake equipment. plan Ry & Eng R 53:106-7 F 1 '13

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Deck shields

Locomotive deck shields. W. R. Hedeman. diag plans Am Eng 87:122-3 Mr '13

Driving boxes

Driving boxes. Ry Age (Mech ed) 87:420-3 Ag '13; Same cond. Ry Age 55:152-3 Jl 25 '13

Flaming taper flanges on driving boxes. C. L. Dickert. diags Ry Age (Mech ed) 87:411 Ag '13

Repairing locomotive driving boxes: brasses cast in place are better both as to service and cost of repairs. M. D. Franey. il diags Am Eng 87:199-202 Ap '13

Equipment

Condensed record of locomotive equipment. R. M. Swartz. Ry Age (Mech ed) 87:527-9 O '13

Bronze liners for crossheads. diags Ry Age (Mech ed) 87:428 Ag '13

Engine and tender coupler. diags Am Eng 87:274 My '13

Locomotive indicating apparatus. H. R. Stafford. plans Ry & Eng R 53:32-5 Ja 11 '13

Service of vanadium steel locomotive parts. Ry Age (Mech ed) 87:618 D '13

Waste steam detector. Sci Am 108:180 F 22 '13

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Frames

Vanadium cast steel locomotive frames. il Ry & Eng R 53:542-3 Je 7 '13

Fuel

Burning low-grade fuels on locomotives. S. B. Flagg. diags Eng N 69:1234 Je 12 '13

5th annual convention of the International railway fuel assn., Chicago, 1913. Ry & Eng R 53:485-7, 507-8 My 24-31 '13

5th annual meeting of International railway fuel assn., Chicago, 1913. Eng N 69:1148 My 29 '13

Fuel economy by the engine crew. M. E. Wells. Ry Age 55:563-4 S 26 '13

Fuel economy on the Buffalo, Rochester & Pittsburgh. H. C. Woodbridge. diags Ry Age 54:247-8 F 14 '13

Fuel record of ten years. Ry & Eng R 53:532-3 Je 7 '13

Locomotive fuel. W. J. Tollerton. Ry Age 54:103-4 Ja 17 '13

Locomotive fuel economy. R. Collett. diag Ry & Eng R 53:537-40 Je 7 '13; Ry Age 55:874-8 N 7 '13

Powdered fuel for locomotives. W. D. Wood. Ry Age 55:13-5 Jl 4 '13

Pulverized coal for locomotives, troubles and remedies. W. D. Wood. Eng M 45:881-3 S '13

Stoker vs. powdered fuel for locomotives. C. F. Street. Ry Age 55:136-7 Jl 25 '13

Sub-bituminous and lignitic coal as locomotive fuel. S. B. Flagg. diags Ry & Eng R 53:530-1 Je 7 '13; Same cond. Ry Age 54:1178-80 My 30 '13; Same cond. Ry Age (Mech ed) 87:290-2 Je '13

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Reversing the locomotive. Sci Am 109:2 Jl 5 '13

Reversing the locomotive. C. E. W. Sci Am 109:227 S 20 '13

Reversing the locomotive. W. L. Heinz. Sci Am 109:7 Jl 5 '13

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Locomotive maintenance costing more than fuel. Ry & Eng R 53:564 Je 14 '13

Locomotive utilization and maintenance cost. Ry & Eng R 53:738-9, 782 Ag 2, 16 '13

Repairing locomotive driving boxes: brasses cast in place are better both as to service and cost of repairs. M. D. Franey. il diags Am Eng 87:199-202 Ap '13

Repairs to main rods. C. D. Ashmore. plans Am Eng 87:29-30 Ja '13

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Rods

Locomotive connecting rods: formulas and constants used by the Baldwin locomotive works. H. A. F. Campbell. il diags Am Eng 87:175-81 Ap '13

Oil and grease cups for rods. R. C. Morton. diag Ry Age (Mech ed) 87:366 Jl '13

Service records of vanadium steel main and side rods for three years. il Sci Am S 76:373 D 13 '13

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Service records of vanadium steel main and side rods on five roads. Ry & Eng R 53:1023-4 N 1 '13

Sandboxes

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Use of sand on locomotives. F. E. Patton. Ry Age (Mech ed) 87:594 N '13

Smoke problem

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Chicago & North Western demonstrates smoke abatement device. Ry Age 54:957 Ap 25 '13
Demonstration of smokeless operation. Chicago & Northwestern Ry. Ry & Eng R 53:384 Ap 26 '13
Elimination of black smoke from locomotives. M. Whelan. Ry Age 55:336-7 Ag 22 '13; Ry Age (Mech ed) 87:472-3 S '13
Elimination of smoke. Ry & Eng R 53:513 My 31 '13
Elimination of smoke. D. F. Crawford. Sci Am S 75:384 Je 14 '13
Influence of air supply on smoking fires. de Grahl. Am Soc M E J 35:1184-6 Ji '13
Tests of Railroad smoke inspectors' association of Chicago. Ry Age 55:239 Ag 8 '13
Tests of smoke abatement devices. il Am Eng 87:236 My '13

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Vanadium springs in locomotive service. Ry & Eng R 53:324 Ap 5 '13

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Handling superheater locomotives. Ry Age 55:334-5 Ag 22 '13; Ry Age (Mech ed) 87:467-9 S '13
Increase in locomotive capacity by the use of highly superheated steam. G. E. Ryder. Ry & Eng R 53:101-3 F 1 '13
Lanz superheater and feed water heater. diags Am Eng 87:71 F '13
Superheater locomotives. P. C. Linck. Ry Age (Mech ed) 87:416-7 Ag '13
Superheater tools and their care. F. Peterson; A. R. Davis. Ry Age (Mech ed) 87:432-3 Ag '13
Tests of superheater locomotives. C. H. Benjamin and L. E. Endsley. Ry & Eng R 53:643-4 Ji 5 '13
Uses of highly superheated steam. Ry Age 54:213-5 Ja 31 '13
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Testing

Compressed air locomotive tests. Eng & Min J 55:1060 My 24 '13
Locomotive laboratory at the University of Illinois. E. C. Schmidt. il diags Ry Age 54:752-4 Mr 28 '13
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Steam consumption of locomotive engines from the indicator diagrams. J. P. Clayton. Ill U Eng Exp Sta Bul 65:5-77 '13
Tests of an Atlantic type passenger locomotive. Pennsylvania R. R. Ry & Eng R 53:732-6, 804-6, 840-2 Ag 2, S 6 '13

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Traction effort

Traction effort. H. A. Houston. Ry Age 55:455-7 S 12 '13
Traction effort chart. L. R. Pomeroy. Ry Age (Mech ed) 87:436 Ag '13

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Valves and valve gears

Critical valve gear analysis. G. A. Hartman. plan Ry & Eng R 53:10-1 Ja 11 '13
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Slide valve successfully used on superheater locomotives. Ry Age 54:1063 My 16 '13
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First full-sized locomotive propelled by oil engines. Eng N 70:670-1 O 2 '13
First thermal locomotive. F. Stornenberg. diags Am Soc M E J 35:1571-4 O '13
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Gasoline motors in coal mines. A. J. King. il Colliery 34:164-5 O '13
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- Welf locomobiles at Buckhorn mine. *H. C. Cutler. Eng & Min J* 96:1228 *D* 27 '13

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- Bus operation in London and Paris. *J. A. McCollum. Elec Ry J* 42:1093-6 *N* 22 '13
- London County council tramways. *Elec Ry J* 42:777 *O* 15 '13
- Motor omnibus accidents in London. *H. R. Wilson. Eng N* 70:550-2 *S* 18 '13

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- Fatal failure of overloaded wooden floor. *Eng N* 69:1145 *My* 29 '13

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- Upward trend of mortality in middle life and old age. *E. E. Rittenhouse. Sci Am S* 75:194-5 *Mr* 29 '13

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- Navy to determine longitude by wireless; also speed of Hertzian waves. *L. E. Browne. Sci Am* 109:103 *Ag* 2 '13
- Time signals by wireless telegraphy; hourly signals transmitted from the Eiffel tower and the accurate determination of longitude by these means. *G. Ferrié. Eng M* 45:719-21 *Ag* '13

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- Meaning of the Los Angeles bond election. *Eng N* 69:917-8 *My* 1 '13
- Recent \$17,600,000 bond election. *B. A. Heinly. Eng N* 69:931-2 *My* 1 '13
- Surplus waters of the Los Angeles aqueduct. *B. A. Heinly. plan Eng N* 69:506-10 *Mr* 13 '13

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- Antelope valley siphon. *W. W. Hurlbut. il plan Eng Rec* 68:60-2 *Jl* 19 '13
- Attacks on the Los Angeles aqueduct. *Eng N* 70:318-20 *Ag* 14 '13
- Completion of Los Angeles aqueduct. *W. W. Hurlbut. il map Eng Rec* 68:482-6 *N* 1 '13
- Completion of Los Angeles aqueduct. *H. Z. Osborne. il Sci Am* 109:364-5 *N* 8 '13
- Completion of the Los Angeles aqueduct. *B. A. Heinly. il Eng N* 69:1257-68 *Je* 19 '13
- Completion of the Los Angeles aqueduct. *B. A. Heinly. il map Munic Eng* 44:289-98 *Ap* '13
- Completion, testing and dedication. *B. A. Heinly. il Eng N* 70:326-3 *N* 6 '13
- Construction and completion of the Los Angeles aqueduct. *B. A. Heinly. il Eng M* 45:1-17 *Ap* '13

- Dedication and opening. *Sci Am S* 76:371 *D* 13 '13

- Designing steel pipe for minimum weight of metal consistent with safety; studies for the jawbone inverted siphon of the Los Angeles aqueduct. *E. R. Bowen. il Eng Rec* 68:682-4 *D* 20 '13

- Failure of a concrete-lined siphon in massive granite. *il plan Eng Rec* 67:640-1 *Je* 7 '13

- Failure of pressure siphon in rock. *Eng Rec* 67:623 *Je* 7 '13

- Failure of the Sand Cañon inclined pressure tunnel. *C. A. Heinly. Eng N* 69:1147 *My* 29 '13

- Failure of the Sand Cañon pressure-tunnel siphon of the Los Angeles aqueduct. *B. A. Heinly. il plan Eng N* 69:1198-1200 *Je* 5 '13

- San Francisco power station no. 1. *il plans Eng Rec* 68:218-20 *Ag* 23 '13

- Story of the Los Angeles aqueduct. *H. Z. Osborne. il Concrete Cem* 3:245-50 *D* '13

Bibliography

- Engineering record references to Los Angeles aqueduct articles. *Eng Rec* 68:486 *N* 1 '13

- Losses. See Electric apparatus—Losses; Electric machinery—Losses**

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- Caring for lost articles in Boston. *E. Dana. Elec Ry J* 42:68-9 *Jl* 12 '13

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- Water supply of Louisville. *il Munic Eng* 45:515-9 *D* '13

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- Company-force work on the Louisville & Nashville railroad. *il Eng Rec* 68:162-3 *Ag* 9 '13

- Extensive improvements on the L. & N. Ry. *Age* 55:143-9, 225-8 *Jl* 25, *Ag* 8 '13

- Features of work between Nashville and Birmingham. *il diags Eng Rec* 68:129-31 *Ag* 2 '13

- New cutoff between Winchester and Irvine, in eastern Kentucky. *plans Eng Rec* 68:270-2 *S* 6 '13

- Reconstruction and new construction from Irvine east. *il plans Eng Rec* 68:359-61 *S* 27 '13

- Relocation and grade reduction on the Louisville & Nashville railroad. *il maps Eng Rec* 68:97-9 *Jl* 26 '13

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- Cheap system of cleaning oil. *plan Eng & Min J* 95:709-10 *Ap* 5 '13

- Collecting and reusing cylinder oil. *E. T. Binns. il Power* 38:652-3 *N* 4 '13

- Economic use of lubricating oils. *diag Iron Age* 91:1012 *Ap* 24 '13

- Engine-cylinder lubrication. *W. Lawrence. Power* 37:838-40 *Je* 10 '13

- Few questions about ring-oiling bearings. *A. De Sisser. Mach* 20:134 *O* '13

- Force feed lubricator. *il Ry Age* 54:113-4 *Ja* 17 '13

- Gas engine cylinder lubrication. *L. T. Durman. Power* 37:531 *Ap* 15 '13

- Graphite lubrication. *il Colliery* 34:193-4 *O* '13

- Instrument to detect over-supply of oil. *il Automobile* 29:150 *Jl* 24 '13

- Lubricating engines in cold weather. *J. C. Hawkins. Power* 38:762 *N* 25 '13; *Same. Sci Am S* 76:375 *D* 13 '13

Lubrication and lubricants—Continued.

- Lubricating oil for automobile engines. H. Tipper. Automobile 29:76-7 J1 10 '13
- Lubricating value of cup greases. A. L. Westcott. *il Am Soc M E J* 35:1043-67 J1 '13; Excerpts. *Ind Eng* 13:409-10 S '13
- Lubrication. (Engineers' study course) Power 35:732-4 N 18 '13
- Lubrication at Steptoe valley smelting & mining co. concentrator. A. G. Marsh. *plan Eng & Min J* 95:1237-9 Je 21 '13
- Lubrication of air compressors. Power 37:194 F 11 '13; Same. *Eng & Min J* 95:661-2 Mr 29 '13
- Lubrication of gas engine cylinders. A. L. Brennan, jr. *Power* 37:419-20 Ja 28 '13
- Lubrication of gas engine cylinders. L. L. Brewster. *Power* 37:341 Mr 11 '13
- Lubrication of machinery. W. J. May. *Sci Am S* 75:355 Je 7 '13
- Lubrication with oils and with colloidal graphite. C. F. Mabery. *charts Sci Am S* 76:349-52 N 29 '13
- McCord & company's improved force feed lubricator for locomotives. *diags Am Eng* 87:157-8 Mr '13
- Mechanical cylinder lubricator. *diags Iron Age* 91:422-3 F 13 '13
- Methods of lubricating machine tools. J. Horner. *diags Mach* 19:436-41, 513-9 F-Mr '13
- Notes on lubricating oils. *Int Marine Eng* 18:450-1 O '13
- Oil and grease cups for rods. R. C. Morton. *diag Ry Age (Mech ed)* 87:366 J1 '13
- Purchase of lubricating oil by specification. A. D. Smith. *Ry & Eng R* 53:144-5 F 15 '13
- Rochester automatic lubricator. *il Eng M* 46:sup 1-3 D '13
- Rock-drill lubrication. *Eng & Min J* 96:489-90 S 13 '13
- Saved engine oil. G. S. Sprague. *plan Power* 37:680 My 13 '13
- Simple test for cylinder oil. C. E. Fairbanks. *Power* 37:26 Ja 7 '13
- Specifications for lubricating oil. *Colliery* 34:314-6 D '13
- Specifications for lubricating oil. A. D. Smith. *Colliery* 33:681-3 J1 '13
- Three useful kinks. L. T. Watry. *il Power* 38:373 S 9 '13
- Triple valve lubrication. *Ry & Eng R* 53:462-3 My 17 '13
- Undesired quick action of brakes lessened by use of graphite. C. N. Remfry. *Ry Age (Mech ed)* 87:317-8 Je '13; Same cond. *Ry Age* 54:1033 My 9 '13
- See also Bearings (machinery); Oil testing

Lubricators. See Lubrication and lubricants**Lumber**

- Equipment needs of lumber manufacturers. *Iron Age* 91:774-5 Mr 27 '13
- Forest products of the United States; the economic value of our trees. *map Sci Am S* 75:14-6 Ja 4 '13
- Specifications and rules for Douglas fir car material. *Ry Age* 55:557-8 S 26 '13
- Transportation of lumber. *Ry & Eng R* 53:822-3 Ag 30 '13
- See also Forests and forestry; Sawmills; Timber

Lumber handling

- Cableway for railway lumber cars. M. M. Cooke. *il Eng N* 70:939-40 N 6 '13

Lumber sheds

- Dry lumber shed. *diags Ry Age (Mech ed)* 87:307 Je '13

Lumber trade

- Lumber company accounting. J. A. McDonald. *J Account* 15:433-43 Je '13

Lumbering

- Logging by electricity. E. J. Barry. *il Am Inst E E Pro* 32:1764-8 S '13
- Logging engineering. L. W. Duffee. *Eng Rec* 68:706 D 20 '13

- Logging with a motor truck. *il Eng N* 69:1065 My 22 '13

- Logging with a motor truck. *il Sci Am* 108:586 Je 28 '13

- Suggestions for college course in logging engineering. *Eng Rec* 68:549-50 N 15 '13

See also Lumber trade

Lungs

- Smallest lung capacity compatible with life. *Sci Am S* 76:91 Ag 9 '13

Lutetia (steamship)

- French liner. *il Int Marine Eng* 18:535-6 D '13

Lydonia (steam yacht)

- American-built steam yacht Lydonia. A. S. Reed, jr. *il Int Marine Eng* 18:66-9 F '13

Lynn, Massachusetts

- White-lighting at Lynn, Mass. *il Elec W* 61:101-2 Ja 11 '13

M**McAdamite**

- McAdamite and its properties. J. P. Carritte. *Metal Ind n s* 11:273 Je '13
- Making McAdamite metal. *Foundry* 41:421 O '13

Macadamized roads. See Roads, Macadamized

- McAndrew's floating school. C. A. McAllister. *Int Marine Eng* 18:18-20, 53-5, 122-5, 167-70, 212-4, 259-61, 310-2, 342-6, 393-5, 446-8, 493-6, 530-3 Ja-D '13 (to be cont)

MacDougall roasters. See Furnaces**Machine design. See Machinery—Design****Machine shop management**

- Continuous manufacturing by placing machines in accordance with sequence of operations. O. C. Bornholt. *il Am Soc M E J* 35:1669-78 N '13; Same. *Iron Age* 92:1276-7 D 4 '13; Same cond. *Iron Tr R* 53:1102-3 D 18 '13
- Contract machine shop sales advantages. G. D. Crain, jr. *Iron Age* 91:1013 Ap 24 '13
- Cost estimating on screw machine products. *il Iron Tr R* 52:909-15 Ap 17 '13
- Cutting the cost of power for the factory. S. Dean. *Iron Age* 91:936-7 Ap 17 '13
- Economical management of sheet metal shop. C. A. Harrington. *Am Mach* 38:739-40 My 1 '13
- Efficient production dependent on up-to-date equipment. A. A. Peebles. *Mach* 19:695-6 My '13
- Eliminating useless trucking from the factory: Ford motor co. O. F. Bornholt. *Ind Eng* 13:506-8 D '13
- Engine house organization and operation. W. Smith. *Ry Age (Mech ed)* 87:597-602 N '13
- Following up the purchase and installation of machinery. A. W. Welch. *il Eng M* 45:674-82 Ag '13
- Force organization in the railroad repair shop. E. Cordeal. *Eng M* 45:538-45 J1 '13
- Getting the most out of the shop; Illustrations of efforts to bring machines to maximum capacity with resultant effect on overhead charges and profit. S. Dean. *Iron Age* 91:200-2 Ja 16 '13
- Machine tools grouped for highest efficiency. *il plan Iron Tr R* 53:405-7 S 4 '13
- Machinery safeguards in a German factory. *il Ind Eng* 13:467-71 N '13
- Noise and factory efficiency. *Sci Am S* 76:189 S 20 '13
- Packard motor car company's production system: records, time studies, etc. O. J. Abell. *il Iron Age* 91:1473-6 Je 19 '13
- Practical principles of rational management. A. H. Church. *Eng M* 44:673-80 F '13
- Production efficiency in typewriter building; methods developed by the Oliver typewriter co., Woodstock, Ill. *il Iron Age* 91:65-70 Ja 2 '13
- Proper care of machines and tools in the manufacture of brass and metal goods. P. W. Blair. *il Metal Ind n s* 11:290-2 J1 '13
- Qualifications of a machine shop instructor. P. B. Allan. *Am Mach* 38:754-5 My 1 '13

Machine shop management—Continued.

Time saving devices on the assembly floor: assembly bin and pipe fitter's bench. diags Ind Eng 13:461 N '13

Twenty operations to make Knight sleeve valve at Stearns factory. il Automobile 29:648-9 O 9 '13

See also Machine shop practice; Mechanical handling; Scientific management; Steel works

Machine shop practice.

Automobile manufacturing methods. D. T. Hamilton. il diags Mach 19:870-5 Jl '13
Building an automobile every 40 seconds. F. H. Colvin. il Am Mach 38:757-62 My 8 '13
Developments in machine shop practice during the last decade. Am Soc M E J 35:217-35 F '13; Same. Mach 19:352-7 Ja '13; Same cond. Ind Eng 13:53-8 F '13

Drilling and milling in the shops of the Winston motor car co., Cleveland. F. H. Colvin. il Am Mach 38:138-40 Ja 23 '13

Electric drive in machine shops. C. Fair. Am Inst E E Pro 32:1923-33 O '13; Same. Ind Eng 13:482-3 N '13

Examples of screw machine set-ups. D. T. Hamilton. il Mach 20:129-34, 184-9 O-N '13

Frame work on an adding typewriter. R. Mawson. il Am Mach 38:847-50 My 22 '13

Increasing axle lathe output. C. L. Dickert. plans Am Eng 87:34 Ja '13

Little economies for the machine shop. S. Dean. Iron Age 91:370-1 F 6 '13

Machinery operations in the Packard plant. O. J. Abell. il Iron Age 91:1415-24 Je 12 '13

Machining automatic chucking machine and lathe turrets. C. M. Conradson. il Mach 20:1-3 S '13

Machining gas tractor parts by novel methods. il Iron Tr R 52:623-5 Mr 13 '13

Machining gasoline engine governor valves. J. F. Winchester. diags Mach 19:499 Mr '13

Machining the Ford cylinders. F. H. Colvin. il Am Mach 38:841-6 My 22 '13

Machining the Keystone gasoline engine parts. F. B. Jacobs. il Mach 19:350-1 Ja '13

Making the Red-E tool-holder. C. L. Lucas. il Mach 19:714-6 My '13

Manufacturing kinks used on contract work. C. L. Lucas. il Mach 20:135-7 O '13

Methods employed in leaf spring manufacture. E. F. Lake. il Iron Age 91:701-5 Mr 20 '13

Methods employed in making the long horn. R. Mawson. il Am Mach 38:733-7 My 1 '13

Methods used in manufacturing the Jones speedometer. E. K. Hammond. il Mach 20:43-7 S '13

Model-room tools and methods. F. B. Lucas. diags Mach 19:369-70 Ja '13

Modern plant of Dodge Bros., Detroit, for automobile parts. il plans Iron Age 91:1-7, 144-6 Ja 2-9 '13

Notable developments in machine shop practice. Iron Tr R 52:468-72 F 20 '13

Oil extracting and washing centrifugal. il plan Met & Chem Eng 11:295 My '13

Pump building plant at Alameda. Cal. F. A. Stanley. il Am Mach 38:861-5 My 22 '13

Safeguarding machinery at Hawthorne. il Sci Am 108:333-4 Ap 12 '13

Safeguarding motor-driven apparatus. D. C. Pultney. il Ind Eng 13:297-301 Jl '13

Safety rules—engine rooms. Eng & Min J 96:501 S 13 '13

Safety rules—machine shop and machinery. Eng & Min J 96:643-4 O 4 '13

Session Am. Soc. M. E. on machine shop topics. Iron Age 92:1340-2 D 11 '13

Shop kinks. W. F. Canavan. il Am Eng 87:81-4 F '13

Shop kinks. C. L. Dickert. diags Ry Age (Mech ed) 87:537-8 O '13

Shop kinks from the Frisco. J. C. Brekenfeld. il diags Ry Age (Mech ed) 87:373-8 Jl '13

Shop practice of the Willys-Overland co., Toledo; evolution of a four-throw crankshaft—machining flywheels, cam-shafts, etc. D. T. Hamilton. il Mach 19:195-9 Mr '13

Slings and hitches for handling machinery. J. Riddell. il Eng N 69:768-72 Ap 17 '13;

Same. Ind Eng 13:155-60 Ap '13; Same cond. Power 37:561-4 Ap 22 '13; Same cond. Eng & Min J 95:1092-1 My 31 '13

Some everyday problems. R. B. Platt. Mach 20:52-3 S '13

Work holding arbors and methods for turning operations. il Mach 20:81-7 O '13

See also Drawing room practice; Drilling and boring; Dynamamos; Engines; Forging; Foundry practice; Gages; Grinding and polishing; Lathes; Locomotive shops; Locomotive works; Machine shop management; Machine tools; Machinery; Pattern making; Planing machines; Railroads—Shops; Sheet-metal work; Steel works; Welding; Workshop management

Machine shops

Appearances. H. Sibley. Am Mach 38:846 My 22 '13

Baird machine company's new plant at Bridgeport, Conn.—layout and building details. plans Eng Rec 67:344-5 Mr 29 '13

Electrical equipment of industrial plants; illumination, motor requirements and telephone-call system of Continental motor mfg. co., Detroit, Mich. H. C. Spillman. il Elec W 61:1081-4 My 24 '13

Engineering workshops of the University of Sheffield. G. W. Barley. il Mach 19:699-701 My '13

Fastening machinery to concrete ceilings. R. Morley. Concrete Cem 2:288 Je '13

Fastening machinery to concrete ceilings. J. Richmond. Concrete Cem 3:68 Ag '13

Foreign metal working costs; wages in German and English machine shops. Iron Age 91:1035 Ap 24 '13

Germany's great industrial plants visited. il Iron Tr R 53:77-80 Jl 10 '13

Industrial plant with all structures built of reinforced concrete. Barry-Wehmiller machinery co., St. Louis. W. J. Knight. il plans Eng Rec 67:256-8 Mr 8 '13; Same cond. Ind Eng 13:188-9 Ap '13

Inspection methods that accomplish maximum good. E. J. Knapp. Eng M 45:701-8 Ag '13

Machine shop heating, ventilating and cooling on a large scale; plant of Ford motor co., Detroit, Mich. il plans Heat & Ven 10:42-8 F '13

Mead-Morrison mfg. co.'s new plant. A. W. Howland. plan Iron Tr R 53:913-4 N 20 '13

Modern principles of shop design. Ind Eng 13:241-2 Je '13

Modernizing an old manufacturing plant: details of changes at E. Horton & sons company's works. il plan Iron Age 92:127-30 Jl 17 '13

Plant of Henry Vogt machine co., Louisville, Ky. G. D. Crain, jr. il Iron Age 91:1221-4 My 22 '13

Plants of the German machine works. il Iron Age 92:442-3 Ag 28 '13

Saxon engineering works, Chemnitz. C. R. King. il plan Eng M 45:334-52, 525-37 Je-Jl '13

Sheet steel pipe plant at Richmond, Cal. il plan Iron Age 91:471-3 F 20 '13

See also Bridge shops; Electric driving; Electric railroads—Shops; Locomotive shops; Machine shop management; Machine shop practice; Machine tools; Railroads—Shops

Machine tool builders' association. *See* National machine tool builders' association

Machine tool industry

Foreign field for machine tools. E. P. Bullard, jr. Iron Tr R 52:1192 My 22 '13

Manufacturing specialist and the influence of new industries. Ind Eng 13:12-3 Ja '13

National machine tool builders' annual convention. New York, 1913. Iron Age 92:372-1 O 30 '13

New tariff bill and the machine tool industry. Mach 19:682a My '13

Precepts for machine tool salesmen. F. M. Ellis. Iron Age 91:826-8 Ar 3 '13

Selling machine tools at a fixed price. J. R. Godfrey. Am Mach 38:737-8 My 1 '13

Semiannual convention of National machine tool builders' assn., New York, May, 1913. Iron Age 91:1232-3 My 22 '13

Machine tool industry *Continued.*

- Specialists who do not specialize in prices.
V: W. Page. Mach 19:544-5 Mr '13
- Machine tools**
- Automatic features on machine tools. E. R. Norris. Mach 20:250-1 N '13
- Automobile and machine tools. Am Mach 38: 161 Ja 23 '13
- Bar turner for Libby turret lathe. il diag Mach 19:30 S '12
- Capacity of metal working machines. S. Dean. Iron Age 91:486-7 F 20 '13
- Cast iron for machine-tool parts. H: M. Wood. il Am Soc M E J 35:1631-44 N '13; Same cond. Foundry 11:523-6 D '13; Same cond. Iron Age 92:1312-4 D '13
- Casting milling cutters and similar tools in high speed steel. E. Dietz. il Metal Ind n s 11:22-3 Ja '13
- Chart for use on the semiautomatic. J. Bailey. Am Mach 38:743 My 1 '13
- Chilled cast iron used for machine tools. H: M. Wood. il Am Mach 38:146-8 Ja 23 '13
- Close-grained soft cast iron. J: J. Porter. Eng M 44:262-4 N '12
- Common limitation of machine tool channel room for chips. C: E. Smart. il Mach 19:878-9 Jl '13
- Cutting power of lathe turning tools. W: Ripper and G. W. Burley. Iron Age 92:1384-9 D 18 '13
- Device for starting and stopping machine tools. il Sci Am S 75:391 Je 21 '13
- Diagram of machine tool operation. L. R. Pomeroy. Am Eng 87:248 My '13
- Disk and square method of determining angular settings. G. H. Gardner. Mach 20:128 O '13
- Economy in tool design. E. H. Pratt. diags Mach 20:38-40 S '13
- Four-slide tools for a wire-forming job. C. L. Lucas. il diag Mach 19:773-4 Je '13
- Fuller attachment for machine sharpener. plan Eng & Min J 95:397 My 17 '13
- Gears for machine-tool drives. J: Parker. Am Soc M E J 35:1645-53 N '13; Same cond. Iron Age 92:1252-3 N 27 '13
- Heat-treated gears in machine tools. A. C. Gleason diags Iron Age 92:1020-3 N 6 '13; Same. Iron Tr R 53:1143-6 D 25 '13; Same. Mach 20:2 6-3 D '13
- Heat-treated gears in machine tools. J. H. Parker. plan Iron Age 92:1154-6 N 29 '13; Same. Mach 20:204-6 D '13
- Heavy tools for machining turbine sections. C. Van Langendonck. il Iron Tr R 53:123-5 Jl 17 '13
- Japanese machine tools. J: S. Nicholl. Am Mach 38:504 My 15 '13
- Locomotive boiler tube tools for application and maintenance of all tubes, including those for superheaters and brick arches. W. R. Hedenan. il plans Am Eng 87:23-9 Ja '13
- Machine finishing of cylinders. S. Dean. Iron Age 91:594-5 Mr 6 '13
- Machine shop kinks. H. T. Nowell. diags Ry Age (Mech ed) 87:555-6 N '13
- Machine-tool design, past and present. H. Sibley. Am Mach 38:772 My 8 '13
- Machining automobile cylinder-valve holes. F. W. Whitehead. diags Am Mach 38:727-8 My 1 '13
- Manufacturing Greaves-Klusman engine lathes. D. T. Hamilton. il Mach 19:65-8 Ag '13
- Methods of lubricating machine tools. J. Horner. diags Mach 19:136-41, 513-9 F-Mr '13
- Motion work kinks. W: H. Fowler. plans Am Eng 87:136 Mr '13
- New era in machine tool design. E. P. Bul-lard, jr. Mach 19:377-80 Ja '13
- New multi-spindle nut tapping machine. il Ind Eng 15:30 Ja '13
- Power requirements for machine tools. H. C. Spillman. il diag Mach 19:769-71 Je '13
- Recent developments in machine tools. il Sci Am 108:144, 160, 180 F 8-22 '13
- Reversing motors for machine tools. C: Fair. il Eng M 45:119-20 Ag '13
- Selecting the correct machine for the work. S. Dean. Iron Age 91:246-7 Ja 23 '13

- Semi-automatic nut tapper. il Am Eng 87:45 Ja '13
- Sheet steel work in the shop of the Galigher machinery co., Salt Lake City. F. A. Stanley. il Am Mach 38:151-4 Ja 23 '13
- Shop notes from Omaha. il Elec Ry J 41: 513-4 Mr 15 '13
- Special machines used by the Hoefer mfg. co. in the manufacture of drilling machines. D. T. Hamilton. il Mach 19:331-3 Ag '13
- Speeds and feeds for machine tools. R. T. Kent. Iron Age 92:18-20 Jl 3 '13
- Standardization of machine tools. Ind Eng 13:176-7 Ap '13
- Stellite as a cutting tool. D. T. Hamilton. il diag Mach 20:297-8 D '13
- Thread cutting tools. J. Waldman. il Mach 20:53-4 S '13
- Tools for a high grade automobile. R. Mawson. il Am Mach 38:127-30 Ja 23 '13
- Tools used by the Gramm motor car co., Lima, O. P. Steiner. il Mach 19:366-8 Ja '13
- Tools used in making printing presses. R. Mawson. il Am Mach 38:719-24 My 1 '13
- Tools used in making the Intertype type-casting machine. R. Mawson. il Am Mach 38:809-13 My 15 '13
- Waterbury Farrel wire spoke machines. il Mach 19:809-10 Je '13

See also Arbors (machinery); Broaching machines; Clutches; Electric driving; Gear cutting; Grinding machines; Heading machines; Lathes; Machine shop practice; Machine tool industry; Metal cutting; Milling machines; Planing machines; Punching machinery; Reamers; Screw machines; Shapers; Shears (machine tools); Tool steel

Fixtures

- Boring and facing spring shackles. C. F. George. diags Mach 20:316 D '13
- Clamping work in jigs. diags Mach 20:300-3 D '13
- Fixtures and gages used in manufacturing the multigraph: devices used in the lathe, shaper and milling machine. D. T. Hamilton. il Mach 19:609-11 Ap '13
- Fixtures for machining exhaust pipes. W. L. Myles. il Mach 19:434-5 F '13
- Fixtures used in making Edgemont friction clutches. D. T. Hamilton. il Mach 19:358-9 Ja '13
- Machining automatic chucking machine and lathe turrets. C. M. Conradson. il Mach 20: 1-3 S '13
- Making a fixture for machining saw-tooth blades. il Mach 19:946-7 Ag '13

See also Chucks

Terminology

- Definition of a machine tool. R. I. Clegg. Iron Age 91:652-3 Mr 13 '13
- Views on nomenclature of machine tools. Iron Age 91:824-5 Ap 3 '13

Machine vibration. See Vibration**Machinery**

- Air compressors and compressed-air machinery. R. L. Streeter. il Eng M 45:822-32; 46: 19-36, 177-83, 381-91 S-D '13
- Cost estimating in machine construction. A. C. Jewett. Mach 20:17-8 S '13
- Finishing machine parts. Mach 19:464 F '13
- Indirect causes of imperfect interchangeability. A. Whitehead. Sci Am S 75:251 Ap 19 '13
- Lugs, facings and bosses. F. W. Shaw. il Sci Am S 75:111-2 F 15 '13
- Machine forging. D. T. Hamilton. il diags Mach 19:581-5, 707-10, 789-94, 883-7; 20:11-5, 91-4 Ap-Jl, S-O '13
- Manganese steel for machinery parts. S. R. Stone. il Iron Age 91:140-2 Ja 9 '13
- On the realization of high angular speeds. M. Leblanc. diag Am Soc M E J 35:533-7 Mr '13
- Power machinery of the American steel industry. R. L. Streeter. il Eng M 44:16-35, 204-21, 362-84, 494-510 O '12-Ja '13
- Practical principles of rational management. A. H. Church. Eng M 44:673-80 F '13
- Specifications for machinery castings. J: J. Porter. Iron Age 91:94-5 Ja 2 '13

Machinery — Continued.

Vetter steel type making machine. C. L. Lucas. *il Mach* 19:961-3 Ag '13

See also Ball bearings; Bearings (machinery); Belting; Bushings; Calculating machines; Chucking machines; Clutches; Conveying machinery; Cotton machinery; Couplings; Cranes, derricks etc.; Crankshafts; Crushing machinery; Dredging machinery; Electric engineering; Electric machinery; Engines; Excavating machinery; Fans, Mechanical; Gearing; Heading machines; Hoisting machinery; Hydraulic engineering; Hydraulic machinery; Indexing machines; Jacks; Jigs; Keys and keyways; Lathes; Locomotives; Lubrication and lubricants; Machine shop practice; Machine tools; Manufactures; Mechanical handling; Mechanics; Milling machines; Mining machinery; Molding machines; Pattern making; Planing machines; Power transmission; Presses; Pulleys; Pumping machinery; Refrigeration and refrigerating machinery; Road-making machinery; Rock cutting machinery; Screw machines; Shafting; Shapers; Slotting machines; Snow-plows; Springs (mechanism); Steam engines; Swaging machines; Typesetting machines; Valves and valve gears; Watch making; Water wheels

Design

Analysis of crankshaft stresses. K. W. Najder. *Mach* 19:866-8 Jl '13
Design of ball bearings. F. J. Jarosch. plans *Ind Eng* 13:24-7, 71-4, 117-9 Ja-Mr '13
Design of clutch release shoes. J. S. Myers. *Mach* 19:723-4 My '13
Design of clutch release shoes. M. Terry. plans *Mach* 19:332-4 Ja '13
Designing faceplate jaws and screws for a heavy lathe. W. G. Dunkley. diags *Mach* 19:766-8 Je '13
Determining shaft diameters. W. G. Dunkley. *Mach* 19:948-9 Ag '13
Machine design from a foundryman's viewpoint. D. Cox. diag *Foundry* 41:536 D '13
Professors of machine design. W. F. Schaphorst. *Mach* 19:806 Je '13
Sketching of mechanism in designing. F. W. Harris. *Mach* 19:541-2 Mr '13
Strength of C-shaped cast-iron frames. A. L. Jenkins. diags *Am Mach* 38:815-7 My '13
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Exhibitions

Foundry and machine exhibition at Chicago. *il Iron Tr* R 53:709-14 O 16 '13
Great foundry equipment exhibition at Chicago. *il Foundry* 41:489-97 N '13
Machinery exhibit at Atlantic City. *Iron Age* 91:1492-3 Je 19 '13

Inspection

Inspection methods that accomplish maximum good. E. J. Knapp. *Eng M* 45:701-8 Ag '13

Machinery, Arrangement of. *See* Machine shop management

Machinery, Automatic

Applications of electromagnetic tripping devices. G. M. Meyneke. diags *Mach* 20:88-90 O '13

Automatic features on machine tools. E. R. Norris. *Mach* 20:250-1 N '13

Automatic machinery, its place in modern manufacturing. A. Pott. *il Metal Ind n s* 11:420-2 O '13

New medium for manufacturing seamless metal tubing. Tubal. *il Metal Ind n s* 11:428-30 O '13

See also Screw machines

Machinery, Canal. *See* Canal machinery

Machinery, Electric. *See* Electric machinery

Machinery, Foundry. *See* Foundry machinery

Machinery, Hydraulic. *See* Hydraulic machinery

Machinery, Kinematics of

How to calculate the power of a press. W. L. Cathcart. *il Mach* 19:725-6 My '13

Machinery, Transportation of

Transporting heavy machinery in Mexico. H. R. Conklin. *il Eng & Min J* 95:501-2 Mr 8 '13

Machinery industry

Joint triple supply convention; Indianapolis meeting of National supply and machinery dealers, Southern supply and machinery dealers, and American supply and machinery manufacturers. *Iron Age* 91:950-1, 971-3 Ap 17 '13

Machinery markets. *See* weekly numbers of the *Iron age*

Pension plan for the machinery industry. W. Lodge. *Iron Age* 91:948-9 Ap 17 '13

Selling guarantees—what are safe limitations? G. O. Gridley. *Mach* 20:248-9 N '13

See also Machine tool industry

McKeesport, Pa.

Filtration plant at McKeesport, Pa. E. C. Trax. *il Munic Eng* 45:14-9 Jl '13

Magdalena river, Colombia

American steamers on the Magdalena river. *il Int Marine Eng* 18:478-80 N '13

Magnalium

Light weight reciprocating motor parts. M. R. Machol. *Iron Age* 91:1238 My 22 '13

Magnesite

Magnesite crucibles. D. M. Liddell. *Eng & Min J* 96:503 S 13 '13

Production and use of magnesite. *Eng & Min J* 96:438 S 6 '13

Magnesium peroxide

Peroxides and per-salts. A. S. Neumark. *il Sci Am S* 75:222 Ap 5 '13

Magnet cores. *See* Electromagnets

Magnetic separation of ores

Elimination of titanium by magnetic concentration. J. T. Singewald, jr. *U S Bur Mines Bul* 64:17-24 '13

Home-made magnetic concentrator. L. O. Kellogg. plan *Eng & Min J* 46:307 Ag 16 '13

Iron concentrator of unusual design. L. O. Kellogg. *il Eng & Min J* 96:243-5 Ag 9 '13

Magnetic separation of minerals. *Met & Chem Eng* 11:297 My '13

Ulrich magnetic separator. diags *Eng & Min J* 96:927-8 N 15 '13

Witherbee-Sherman no. 3 magnetic mill. S. L. Nason. *il Eng & Min J* 96:959-62 N 22 '13

See also Electrometallurgy

Magnetic surveys. *See* Magnetism, Terrestrial

Magnetism

Demagnetization and recovery of permanent magnets. S. Sano. *il Elec W* 61:96-7 Ja 11 '13

Magnetism and elasticity. *Elec W* 61:550-1 Mr 15 '13

Magnetism and elasticity. F. J. Kean. *il Elec W* 61:569-70 Mr 15 '13

Some historical inaccuracies in text-books on physics. Brother Potamian. *Elec W* 62:1221-2 D 13 '13

See also Electromagnets; Magnetic separation of ores

Magnetism, Terrestrial

International magnetic survey. *Sci Am* 108:466 My 24 '13

Magnetite. *See* Iron metallurgy; Iron mines and mining; Iron ores

Magnetite linings for basic copper converters. A. E. Wheeler and M. W. Krejci. *Am Inst Min E Bul* 84:2769-73 D '13

Magneto

Battery versus magneto ignition systems. B. F. Bailey. diags *Automobile* 29:376-9 Ag 28 '13

Care of magnetos. A. L. Brennan, jr. *Power* 38:57-8 Jl 8 '13

Correct positions of breaker box mechanism and distributor in Splittdorf, Remy, Bosch, and Bosch low-tension magnetos. diags *Automobile* 29:711-2 O 16 '13

Magneto couplings for 1913. diags *Automobile* 28:900-3 Ap 24 '13

Magneto field well stocked. *il Automobile* 28:374-81 Ja 30 '13

Magnetos *Continued.*

- Remounting a magneto after a repair. *Automobile* 29:1156 D 18 '13
 Remy brings out new watertight magneto. *il Automobile* 29:472 S 11 '13

Magnets, Lifting. *See* Lifting magnets**Mahogany, Gambia.** *See* Gambia mahogany**Mail handling.**

- Electric carrier for mail or package freight. *il Eng Rec* 68:387 O 4 '13
 Electric carrier railways for rapid transfer of mail and express. *il Eng N* 70:637-9, 702-4 O 2-9 '13
 Electric carrier system. *il Ry Age* 55:624-5 O 3 '13
 Jones' mail catcher. *il Ry Age* 55:758 O 24 '13
 New mail carrying railway: a parcels post tunnel. *il Sci Am* 109:263 O 4 '13
 New railway mail exchanging apparatus. *il Sci Am* 108:292 Mr 29 '13
 Parcels post tunnel railway. *il Sci Am* 108:4 Ja 4 '13

See also Motor trucks in postal service

Mail service. *See* Electric railway mail service; Postal cars; Postal service; Railway mail service**Maine**

- Public utilities law of Maine. *Elec W* 61:1029-30 My 17 '13

Maine monument, New York city

- Maine monument. H. V. Magonigle. *il Arch & Bldg* 45:302-5 Jl '13

Maintenance of way master painters' association

- Abstract of papers presented at 10th annual convention at Louisville, Ky., 1913. *Ry Age* 55:982-5, 1179-81 N 21, D 19 '13

Malaria

- Rehabilitating the Roman Campagna. *Sci Am* 108:481 My 24 '13

Man, Prehistoric

- Plastic art of prehistoric man. *il Sci Am* 108:270 Mr 22 '13

Management. *See* Factory management; Foundry management; Machine shop management; Mine management; Office management; Scientific management; Workshop management**Management, Central station.** *See* Electric plants—Central stations—Management**Management, Scientific.** *See* Scientific management**Manganese**

- Determination of manganese as sulphate and by the sodium bismuthate method. W. Blom. *U S Bur Stand Bul* 8:715-40 Mr 1 '13

- Separation of iron and manganese. *Eng & Min J* 95:377-8 F 15 '13

- Utilization of highly silicious iron and manganese minerals. N. Tarugi. *Eng & Min J* 96:64 Jl 12 '13

- World's supply of manganese ore. *Iron Age* 91:1432-3 Je 12 '13

Manganese steel

- Manganese open-price associations. *Elec Ry J* 42:984 N 1 '13

- Manganese steel castings. J. H. Hall. *il Iron Age* 91:712-3 Mr 20 '13

- Manganese steel for machinery parts. S. R. Stone. *il Iron Age* 91:140-2 Ja 9 '13

- New track appliances. *Ry & Eng R* 53:955-6 O 11 '13

- Practice of the Edgar Allen American manganese steel co. *il Iron Tr R* 52:1404-11 Je 19 '13; Excerpts. *Ind Eng* 43:492-3 N '13

Mangrove

- Wood that never rots. *Sci Am S* 76:347 N 29 '13

Manhattan. *See* New York (city)**Manholes**

- Transformers for manholes. *il diag Elec W* 62:349 Ag 16 '13

Manila, Philippine Islands

- Special concrete foundations in the Manila port district. J. W. Graham. *diags Eng N* 70:554-5 S 18 '13

Mantels

- Four early American mantels; pictures. *Arch Rec* 34:225-31 S '13

Manual training

- Daniel Boone idea in education; school system based on voluntary muscular work. *il Sci Am* 109:361 N 8 '13

See also Industrial education; Technical education; Trade schools

Manufacturers

- Foreign visitors in American plants. R. Moldenke. *Iron Age* 91:384-5 F 6 '13

- Manufacturer's duty in the electric railway field. J. H. Drew. *Elec Ry J* 42:25 Jl 5 '13

Manufacturers, National association of. *See* National association of manufacturers**Manufactures**

- Agriculture, manufactures and railways, a study of capital values and net returns. *Sci Am S* 75:66-7 F 1 '13

- Chemical engineer and industrial efficiency. W. M. Booth. *Sci Am S* 75:210-1 Ap 5 '13

- Contract machine shop sales advantages. G. D. Crain, jr. *Iron Age* 91:1013 Ap 24 '13

- How patented inventions have increased the national wealth. *Sci Am* 108:414 My 3 '13

- Industrial need of technically trained men: scientific manufacturing and the opportunities it offers. W. B. Kaempffert. *Sci Am* 108:252 Mr 15 '13

- Manufacturing problems. F. D. Bell. *il Sci Am* 108:577-8 Je 28 '13

- Manufacturing specialist and the influence of new industries. *Ind Eng* 13:12-3 Ja '13

- Manufacturing the circular cut file. C. L. Lucas. *il Sci Am S* 75:92-3 F 8 '13

- Modern practice in manufacturing plant appraisal. C. W. McKay. *Mach* 19:686-7 My '13

- Price fixing by a monopoly and price fixing by a single manufacturer. W. Kaempffert. *Sci Am* 108:566 Je 21 '13

- Price maintenance and modern merchandising. W. Kaempffert. *Sci Am* 109:20 Jl 5 '13

See also Automobiles; Box making; Cost accounting; Factories; Foundries; Fuel; Glass manufacture; Hardware; Iron industry; Labor and laboring classes; Leather; Machine shops; Machinery; Manufacturers; Metal work; Mills and millwork; Paper; Patents; Pottery; Rubber; Scientific management; Steel industry; Textile industry and fabrics; Tubes; Waste products; Watch making

Costs

- Axioms concerning manufacturing costs. H. R. Towne. *Iron Age* 91:282-5 Ja 23 '13

See also Cost accounting

Map photography

- Photographing blueprint maps. H. A. Williamson. *Colliery* 33:689 Jl '13

Maple

- Experiments in the preservative treatment of red-oak and hard-maple crossties. F. M. Bond. *il U S Forest Serv Bul* 126:9-92 '13

- Uses of commercial woods of the United States. H. Maxwell. *U S Agric Bul* 12:32-56 '13

Maps

- Mapping the sphere on a plane. *il Sci Am* 109:66 Jl 26 '13

See also Geology—Maps; Map photography; Railroad maps; Relief maps; Topographical maps

Maps, Aeronautic

- Aviation map of the world and marks for aviators. map *Sci Am S* 76:179 S 20 '13

Maps, Relief. *See* Relief maps**Maps, Topographical.** *See* Topographical maps**Marine boilers.** *See* Boilers, Marine**Marine engineering**

- Marine engineering in the good old days. *Int Marine Eng* 18:313-4 Jl '13

- Rebuilding a double bottom under engines. E. Benvenuti. *diags Int Marine Eng* 18:330-2 Ag '13

- Underwater horizontal ash discharger. F. P. Talen. *il Eng M* 46:287-8 N '13

Marine engineering *Continued.*

Varied experience at sea, C. C. Weddell.
Int Marine Eng 18:126-7 Mr '13

See also Boilers, Marine; Electricity on ships; Marine engines; Propellers; Ship propulsion; Shipbuilding; Steam turbines, Marine

Study and teaching

McAndrew's floating school, C. A. McAllister, diags Int Marine Eng 18:18-20, 53-5, 122-5, 167-70, 212-1, 259-61, 310-2, 312-6, 333-5, 416-8, 43-6, 530-3 Ja-10 '13 (to be cont)

Marine engines

Carols-Diesel engine applied to motor ship

Evestone, il Eng M 44:601-4 Ja '13

Development of producer gas motor boats, il Int Marine Eng 18:484-6 N '13

Engineering progress in the U. S. navy, Power 37:10-2 Ja 7 '13

Engineering progress in U. S. navy, C. W. Dyson, il Power 37:106-9 Ja 28 '13

First American-built marine Diesel engines, il diag Power 37:780-2 Je 3 '13

Fuel oils for use in marine Diesel engines, il Int Marine Eng 18:104-5 Mr '13

Gas engine yacht, R. MacIntyre, il Sci Am 100:165-6 Ag 30 '13

Geared turbine, Power 37:598 Ap 29 '13

German Diesel engine tank ship Hagen, il plans Int Marine Eng 18:207-11 My '13

Incidents relating to the design, care and handling of marine engines, boilers and auxiliaries. See monthly numbers of International marine engineering

Possibilities of the marine oil engine, T. Lucas, plans Int Marine Eng 18:56-9 F '13; Same cond, Eng M 45:114-7 Ap '13

Possibilities of the marine oil engine, J. F. Wentworth, Int Marine Eng 18:129-30 Mr '13

Problem of marine oil engines for ocean liners, Sci Am 109:2 Jl 5 '13

Single screw motor ship of 1,500 b. h. p. J. R. Wilson, il plan Int Marine Eng 18:102-4 Mr '13

Small internal combustion engines on land and water, Sci Am 108:304 Ap 5 '13

Trials of a 100 brake horse-power oil engine; Junkers engine, il Sci Am 8 76:348-9 N 29 '13

Twin-screw motor-ship Hagen—a new Krupp two-stroke type Diesel-engine tank vessel of 2400 b. hp. J. R. Wilson, il Eng N 69:906-7 My 1 '13

Twin-screw motor ship Monte Penedo, il Eng M 44:257-61 N '12

Word of warning: navies and the policy of oil fuel, Sci Am 109:46 Jl 19 '13

See also Boilers, Marine; Gas and oil engines; Marine engineering; Motor ships; Steam engines; Steam turbines, Marine

Marine insurance. See Insurance, Marine**Marine law.** See Maritime law**Marine lighting.** See Acetylene for lighthouses, buoys, etc.**Marine painting.** See Painting, Submarine**Marine steam turbines.** See Steam turbines, Marine**Marine surveying.** See Hydrographic surveying**Marine zoology**

Attached animals, il Sci Am 8 76:236-7 O 11 '13

Maritime law

Safety of life at sea, J. Donald, J Fr Inst 175:15-42 Ja '13

See also Shipping; Steamboat inspection

Marquette (Mich.) Light and power commission

24th annual report for year ended Mr. 11, 1913, Elec W 61:1123-4 My 21 '13

Marsh gas. See Firedump**Marshes**

Reclamation of swamp lands in North Carolina, J. H. Pratt, Eng N 69:1108 My 29 '13

See also Drainage; Reclamation of land

Mason valley mines company

Mason valley mines, Lyon county, Nevada, Eng & Min J 95:1185-6 Je 14 '13

Masonry

Preventing dampness in masonry, il Eng Rec 67:82-3 Ja 18 '13; Same, Concrete Cem 2:91 F '13

See also Arches; Brickwork; Bridges; Building; Cement; Dams; Foundations

Massachusetts institute of technology

Co-operation between Massachusetts institute of technology and Harvard university, Eng N 69:733 Ap 10 '13

Co-operation in educational effort, Sci Am 108:153 F 15 '13

Layout for the new technology, Arch Rec 33:272-5 Mr '13

Plans for new buildings, il plan Eng N 70:1053-5 N 26 '13

Massachusetts master plumbers association

Annual convention, Boston, April, 1913, Dom Eng 63:70-3 Ap 19 '13

Massachusetts railroad commission

44th annual report, 1912, Elec Ry J 41:162 Ja 25 '13

Master blacksmiths' association. See International railroad master blacksmiths' association**Master boiler makers' association**

Addresses and abstracts of the reports and the discussions at the 7th annual convention, Chicago, May, 1913, Ry Age (Mech ed) 87:314-6 Je '13

7th annual convention, Chicago, May, 1913, Ry & Eng R 53:501-2, 510 My 31 '13

7th annual convention, Chicago, 1913, Ry Age 54:111-63 My 30 '13

Master car and locomotive painters' association

44th annual convention, Ottawa, Canada, Sept. 1913, Ry Age 55:495-8 S 19 '13

44th annual convention; papers and discussion on care of steel cars, rust inhibitive paints, safety first, and brushes for painting steel, Ry Age (Mech ed) 87:531-45 O '13

Master car builders' association

47th annual convention, Atlantic City, June, 1913, Eng N 69:1341-4 Je 26 '13

47th annual convention, Atlantic City, June, 1913, Ry & Eng R 53:595-8, 607-11, 627-8, 632-4 Je 21-28 '13

47th annual convention, Atlantic City, June, 1913; program, Ry & Eng R 53:517 Je 7 '13

Papers at convention, Atlantic City, June, 1913, Elec Ry J 41:1113-4 Je 21 '13

Master mechanics' association. See American railway master mechanics' association**Master mechanics (railroad)**

Division master mechanic, Am Eng 87:70-1 F '13

Master steam and hot water fitters, National association of. See National association of master steam and hot water fitters**Matches**

Menace of the match, F. H. Wentworth, Am Ind 13:19 Ap '13

Materials. See Building materials; Road materials**Materials.** Strength of. See Strength of materials**Mathematical instruments**

See also Calculating machines; Drawing instruments; Planimeters; Slide rule

Mathematical recreations

Mathematical diversions, C. Jacobus, Sci Am 8 76:43 Jl 19 '13

Mathematical diversions, F. B. Selkin, Sci Am 8 75:383 Je 14 '13

Mathematics for recreation, F. B. Selkin, Sci Am 8 76:16 Jl 5 '13

Straight line, apparently, not always the shortest, il Sci Am 108:470 My 24 '13

Mathematics

Limitations of mathematical theory, W. G. Burton, Eng Rec 68:518 N 8 '13

Review of mathematics with test questions, (Engineers' study course) Power 37:507-8 Ap 8 '13

See also Arithmetic; Calculating machines; Mechanics; Mensuration; Metric system; Surveying

Mathematics *Continued.***Formulas**

Formulas and their use; simple explanation of signs and symbols employed in mining calculations. *Colliery* 33:413-5 Mr '13

Study and teaching

Teaching mathematics to engineering students. *W. Whited, Eng N* 70:538-9 S 18 '13

Matter

Matter and electricity. *Elec W* 61:330 F 15 '13

Relation of matter to electricity. *A. W. Goodspeed, J Fr Inst* 176:303-18 S '13

See also Atomic theory; Atoms; Elasticity; Force and energy; Molecules; Radioactivity; Transmutation of elements

Mattresses

His mattress a life raft. *Il Sci Am* 108:90 Ja 25 '13

Mausoleums. *See* Tombs**Mauvages tunnel**

Relining the Mauvages tunnel on the Marne ship canal. *F. B. Mann, plan Eng Rec* 67:203-4 F 22 '13

Maxwell motor company, Newcastle, Ind.

Maxwell uses one factory for spare parts for 244 models. *Automobile* 29:1098-1100 D 11 '13

Measurement

See Area measurement; Calculating; Electric measurement; Gages; Gas meters; Liquid meters; Meters; Micrometers; Planimeters; Slide rule; Stream measurement; Surveying; Temperature—Measurement; Water measurement; Water meters; Weights and measures

Measurement, Electric. *See* Electric measurement

Measurement of temperature. *See* Calorimeters and calorimetry; Pyrometers and pyrometry; Temperature—Measurement; Thermometers

Measures. *See* Mensuration; Weights and measures

Meat

Frozen meat industry of New Zealand. *A. M. Wright, Sci Am S* 76:211 O 4 '13

See also Meat extracts; Meat markets; Packing industry

Meat, Artificial

Artificial meat. *Sci Am* 109:253 O 4 '13

Meat extracts

Bouillon cubes; their contents and food values compared with meat extracts and home-made preparations of meat. *F. C. Cook, Il U S Agric Bul* 27:1-7 '13

Meat markets

Electrical refrigeration for the butcher. *R. L. Lloyd, Il Elec R & W Elec'n* 62:83-8 Ja 11 '13

Mechanical draft

Balanced draft system of furnace regulation. *Il plan Power* 37:181-3 F 11 '13

Control of furnace draft. *E. Brown, Power* 38:465-6 S 30 '13

Diehl electrically controlled draft regulation. *Il Power* 37:247-8 F 18 '13

Prat system of induced draft. *L. Prat, plan Power* 3:271-2 Mr 18 '13

See also Boilers; Draft; Fans, Mechanical; Smoke prevention

Mechanical drawing

Free-hand sketching in mechanical work. *A. A. Dowd, Il Mach* 19:673-6 My '13

Shading in mechanical drawing. *T. W. Johnson, diag's Am Mach* 38:865-7 My 22 '13;

Same. *Am Soc M E J* 35:593-600 Ap '13; Discussion. 35:1261-8 Ag '13

Sketching of mechanism in designing. *F. W. Harris, Sci Am S* 75:179-80 Mr 22 '13

See also Architectural drawing; Drawing room practice; Drawing instruments; Graphic statics; Lettering; Machinery—Design; Pattern making

Mechanical engineering

American society of mechanical engineers' 34th annual meeting. *Iron Tr R* 53:1081-7 D 11 '13

Spring meeting of Am. Soc. M. E., Baltimore and Annapolis, May 29-31, 1913. *Iron Tr R* 52:1235-8 My 29 '13

See also Boilers; Electric engineering; Engineering; Engines; Fuel; Hydraulic engineering; Locomotives; Lubrication and lubricants; Machine shop practice; Machine tools; Machinery; Marine engineering; Mechanical draft; Mechanics; Power plants; Power transmission; Steam engines; also American society of mechanical engineers

Mechanical engineers

Proposed code of ethics for mechanical engineers. *Eng Rec* 67:95-6 Ja 25 '13

Mechanical engineers, American society of. *See* American society of mechanical engineers

Mechanical fans. *See* Fans, Mechanical

Mechanical handling

Cleveland electric illuminating co. ash handling plant. *Il Iron Age* 91:426 F 13 '13

Device for loading ties. *Il diag's Ry Age* 55:1181-2 D 19 '13

Efficient foundry sand-handling plant installed in the Hart-Parr co.'s foundry. *Il Foundry* 11:21-6 Ja '13

Foundry of J. L. Case threshing co. notable for transporting devices. *Il plan Iron Age* 92:769-71 O 9 '13

Freight-handling equipment of New York dock company. *Il plan Eng Rec* 67:432-3 Ap 19 '13; Same. *Ry & Eng R* 53:365-7 Ap 19 '13; Same. *Int Marine Eng* 18:204-6 My '13

Freight-handling machinery for increasing dock capacity, by New York dock co. *Il Eng N* 69:911 My 1 '13

Handling cost reduced by tractors. *Il Iron Age* 92:11-5 J1 3 '13

Handling of material in an implement plant; mono-rail trolley system in Emerson-Brantingham co. works, Rockford, Ill. *Il Iron Tr R* 52:1013-6 My 1 '13

Material handling plant in a scrap yard. *Il Iron Age* 91:187-8 Ja 16 '13

Mechanical handling of coal for British locomotives. *C. J. B. Cooke, plan Ry & Eng R* 53:458-9 My 17 '13

Mechanical loader for motor trucks. *Sci Am* 109:76 J1 26 '13

Methods of handling materials in shops. *H. C. Spillman, Il Iron Age* 92:1272-3 D 4 '13

Motor-operated clam-shell bucket. *Il Eng N* 70:168 J1 24 '13

Possible economies in shop transportation. *R. T. Kent, diag's Iron Age* 92:280-2 Ag 7 '13

Slings and hitches for handling machinery. *J. Riddell, Il Eng N* 69:768-72 Ap 17 '13; Same. *Ind Eng* 13:155-60 Ap '13; Same cond. *Power* 37:561-4 Ap 22 '13; Same cond. *Eng & Min J* 95:1092-4 My 31 '13

Storing and handling of material of Maintenance department; seven papers. *Ry Age* 51:159-61 Ja 21 '13

Unloading car of bulk cement in one hour with one man. *Il Concrete Cem* 2:147-8 S '13

Unloading earth from cars by sluicing. *J. C. Lathrop, Eng N* 70:609 S 25 '13

Wagon loaders for handling sand, stone and gravel. *Il Munic Eng* 45:188 Ag '13

See also Ash handling; Coal handling; Conveying machinery; Dumping appliances; Freight handling; Grain handling; Lumber handling; Mail handling; Mine haulage; Ore handling; Rail handling; Telpherage

Mechanical models

Franklin institute treasures. *H. D. Jones, Il Sci Am* 108:473 My 24 '13

Model room tools and methods. *F. B. Lucas, diag's Mach* 19:369-70 Ja '13

Simple methods in model-making; how soft wood and cardboard can be used. *P. Collins, Il Sci Am* 109:65 J1 26 '13

Mechanical movements

See also Pulleys

Mechanical stokers. *See* Stokers, Mechanical

Mechanical theory of life

Dead matter that seems alive; synthetic ideas about life. *B. C. Gruenberg, Il Sci Am* 109:93 Ag 2 '13

Mechanical theory of life—Continued.

Vitalism and mechanism. *Sci Am* 109:82 Ag 2 '13

Mechanics

McAndrew's floating school. C. A. McAllister. *Int Marine Eng* 18:18-20 Ja '13

See also Aeronautics; Bridges—Load; Counterbalance weights; Elasticity; Fluids; Force and energy; Friction; Gases; Graphic statics; Hydraulic; Liquids; Machinery; Matter; Moments of inertia; Power; Pulleys; Rotating discs; Strength of materials; Torque

Mechanics, Applied

Automatic balancers. M. Leblanc. *Am Soc M E J* 35:893-6 My '13

Computing the shear on pins. W. C. Stripe. *Am Mach* 38:787-8 My 8 '13

Limitations of mathematical theory. W. G. Button. *Eng Rec* 68:518 N 8 '13

Mechanics of mining. R. T. Strohm. *Colliery* 23:448-9, 487-9, 566-8, 633-5, 713-5; 34:43-5, 114-6, 184-6, 246-7, 307-8 Mr-D '13 (to be cont)

On the realization of high angular speeds. M. Leblanc. *diag Am Soc M E J* 35:533-7 Mr '13

Punching and shearing values for steel. G. C. Anthony. *diags Am Mach* 38:857-9 My 22 '13

See also Machinery—Design; Mechanical engineering; Power transmission; Strains and stresses

Mechanics' liens

Some phases of the mechanics' lien law. W. H. Burquest. *Dom Eng* 62:14 Ja 4 '13

Medals

Willard Gibbs medal. *Met & Chem Eng* 11: 303-4 Je '13

Medical biography. *See* Physicians and surgeons

Medical inspection system of the Brooklyn rapid transit co. *Ry & Eng R* 53:708-9 Ji 26 '13

Medicine, Military

Humanitarian side of war: Red cross sanitary equipment for the field. W. J. Murray. *il Sci Am S* 75:412-3 Je 28 '13

Medicine, Preventive

Prevention of disease versus cost of living. T. F. Harrington. *Sci Am S* 75:402-3 Je 28 '13

See also Hygiene; Public health; Sanitation

Medina temple, Chicago

Eastern architecture in the West. J. E. Murphy. *il Arch Rec* 33:339-49 Ap '13

Megalithic monuments

Stone monuments: their relation to history and geography. J. W. Fewkes. *il Sci Am S* 76:248-51, 264-5 O 18-25 '13

Melbourne, Australia**Railroads**

Award of contract for electrification of Melbourne suburban system. *map Elec Ry J* 41:255 F 8 '13

Contract awarded for electrification of the Melbourne suburban railways. *Ry & Eng R* 53:120-1 F 8 '13

Electrical equipment for the Melbourne suburban railways. *Elec W* 61:315-6 F 8 '13

Electrification of Melbourne suburban railways. *Ry & Eng R* 53:59 Ja 18 '13

Melting points

Approximate melting points of some commercial copper alloys. H. W. Gillett and A. B. Norton. *Metal Ind n s* 11:514-7 D '13

Memory

Efficiency in learning: a practical result of experimental pedagogy. P. R. Radosavljevich. *il Sci Am* 109:179-80 S 6 '13

Memphis, Tennessee**Bridges**

Memphis cantilever bridge. *plans Eng N* 70: 930-2 N 6 '13

New Mississippi river bridge at Memphis. *diag Ry Age* 55:824-5 O 31 '13

New Mississippi river bridge at Memphis. *diags Eng Rec* 68:516-7 N 8 '13

Railroads

Illinois Central improvement. *il plan Eng Rec* 68:720-2 D 27 '13

Mensuration

Circle. (Engineers' study course) *Power* 37:313-5 Mr 4 '13

Cylindrical segments and ellipses. (Engineers' study course) *il Power* 37:468-70 Ap 1 '13

Lines and angles; the circle. (Engineers' study course) *Power* 37:202-3 F 11 '13

Polygons. (Engineers' study course) *Power* 37:275-7 F 25 '13

Pyramid, cone and frustum. (Engineers' study course) *il Power* 37:354-6 Mr 11 '13

Quadrilaterals; triangles. (Engineers' study course) *Power* 37:238-40 F 18 '13

Spheres. (Engineers' study course) *il Power* 37:392-4 Mr 18 '13

Spherical segment. (Engineers' study course) *il Power* 37:430-2 Mr 25 '13

Table of feet reduced to decimals of a mile. J. G. Wishart. *Ry Age* 55:793 O 24 '13

See also Area measurement; Gages; Metric system; Surveying; Weights and measures

Mental arithmetic. *See* Arithmetic, Mental

Mental tests. *See* Ability tests

Mercantile marine. *See* Shipping

Mercer, Henry Chapman, 1856-

Personal architecture: house of H. C. Mercer. Doylestown, Pa. W. T. Taylor. *il Arch Rec* 33:242-54 Mr '13

Merchant marine. *See* Shipping

Mercury

Concentration of cinnabar ores. G. V. Northey. *il Eng & Min J* 96:783-4 O 25 '13

Quicksilver mining in 1912. *Eng & Min J* 95: 78-9 Ja 11 '13

Quicksilver operations in northern California. L. H. Eddy. *Eng & Min J* 96:828 N 1 '13

Mercury interrupters. *See* Interrupters

Mercury vapor lamps. *See* Electric lamps, Mercury vapor

Mershon, Ralph Davenport, 1868-

Portrait. *Eng N* 69:196a Ja 30 '13
Ralph D. Mershon, president of Am. Inst. E. E. G. A. Wardlaw. *Eng N* 69:200-2 Ja 30 '13

Metal coating

Industrial applications of spray method for producing metallic coatings. *Automobile* 28: 1302 Je 26 '13

Metal plating with the air brush: Schoop process. *il Sci Am* 109:346 N 1 '13

New process for coating surfaces with metal: spray of finely divided metal. Dr. Lach. *il Sci Am S* 76:108-9 Ag 16 '13

Recent advances in the spray process for the production of metallic coatings. M. U. Schoop. *il Met & Chem Eng* 11:89-91 F '13

Schoop metal spray process. E. U. Schoop. *diag Eng M* 46:265-8 N '13

Schoop system of metal plating. *il Mach* 19: 869 Ji '13

See also Electroplating; Plating

Metal coloring

Arsenic as an agent in metal coloring. E. Blasset, jr. *Metal Ind n s* 11:124-5 Mr '13

Artificial and genuine patina. *Sci Am S* 75: 319 My 17 '13

Coloring iron and steel products. E. F. Lake. *Mach* 19:778-9 Je '13

Coloring non-ferrous metals and alloys. E. F. Lake. *Mach* 20:27-30 S '13; Same. *Sci Am S* 76:266-7 O 25 '13

Coloring of extrusion metal. C. H. Proctor. *Metal Ind n s* 11:126 Mr '13

See also Bronzing; Gilding

Metal corrosion. *See* Corrosion and anti-corrosives

Metal cutting

Davis-Bournonville mechanically-guided metal-cutting torches. *il Mach* 19:818-9 Je '13

Metal cutting—*Continued.*

- Diagram of machine tool operation. L. R. Pomeroy. *Am Eng* 87:248 My '13
- Improved machine-drill: heavy-feed Vaulclain drill adapted to economical metal cutting. A. C. Vaulclain and H. V. Wille. *plans Eng M* 44:622-4 Ja '13
- Manufacturing broaching machines and tools: description of system with details of production of necessary equipment at J. N. Lapointe co. *il Iron Tr R* 52:735-8 Mr 27 '13
- Melting metal under water. *il Sci Am* 108:580 Je 28 '13
- Newton cold metal sawing machine. *il Iron Tr R* 53:410 S 1 '13
- Osweld cutting and welding process. *il Ry & Eng R* 53:570-1 Je 14 '13
- Oxy-acetylene welding and cutting in European commercial and railway repair establishments. H. W. Jacobs. *il Ry Age* 51:475-8 Mr 14 '13
- Oxyacetylene welding and cutting operations. *il Eng N* 69:1062-3 My 22 '13
- Pantagraph which draws on steel with a point of flame. H. H. Supplee. *il Sci Am* 109:300 O 18 '13
- Recent improvements in machine tools. *Sci Am* 108:180 F 22 '13
- Stellite as a cutting tool. D. T. Hamilton. *il diag Mach* 20:297-8 D '13
- Welding and cutting with oxygen and illuminating gas. *Ry Age* 55:196-7 Ag 1 '13
- See also* Cutting machinery; Steel cutting

Metal finishing

- Methods of finishing metal surfaces. E. K. Hammond. *il Mach* 19:852-4 Jl '13
- Progress made in scraping metal surfaces. L. J. Krom. *il Metal Ind n s* 11:521-2 D '13
- See also* Metal coloring; Metal protection

Metal laths

- Metal lath with integral furring strips. *il Eng N* 69:167 Ja 23 '13

Metal polishing. *See* Grinding and polishing**Metal protection**

- Basic pigments and metal corrosion. *Iron Age* 92:342-3 Ag 14 '13
- Cumberland patent process for the protection of metals. *Int Marine Eng* 18:366-7 Ag '13
- Electrolytic prevention of boiler corrosion. *Power* 37:705 My 20 '13
- Influence of basic pigments in protecting metals from corrosion. H. A. Gardner. *Eng Rec* 68:93-4 Jl 26 '13
- Influence of basicity on protective value of paints for metals. *Eng Rec* 68:87 Jl 26 '13
- Preservation of iron and steel: tests to determine the best methods in painting. *Iron Age* 92:324-5 Ag 7 '13
- Preservation of metals for marine work. F. Lyon. *Int Marine Eng* 18:151-4 Ap '13; *Same cond. Eng M* 45:440-2 Je '13
- Preservative coatings. *Iron Age* 92:49 Jl 3 '13
- Protective coatings for railway bridge floors. A. W. Carpenter. *Eng N* 69:60-1 Ja 9 '13
- Rust inhibitive paint. *Ry Age* (Mech ed) 87:541 O '13
- Selecting and specifying protective coats for iron and steel. J. C. Smith. *Eng M* 44:334-9 D '12

See also Corrosion; Galvanizing; Painting, Structural

Metal spinning

- Improved method of metal spinning. *il Mach* 19:933-4 Ag '13

Metal surfaces. *See* Metal finishing**Metal tariff.** *See* Metal trade**Metal testing.** *See* Metals—Testing; Ore testing**Metal trade**

- Billion-dollar metal output. *Iron Tr R* 53:875 N 13 '13
- Country's enormous junk heap. *Foundry* 41:384-6 S '13
- General business conditions and the metal markets in 1912. *Met & Chem Eng* 11:1-3 Ja '13
- Iron and metal markets. *See* weekly numbers of the *Iron age*

Metal markets. *See* weekly numbers of the *Engineering and mining journal***Metal schedule in the House.** *Iron Tr R* 52:1084-6 My 8 '13**Metal schedule of the Underwood tariff:** dutiable list and free list. *Iron Age* 91:sup894a-S 14 Ap 10 '13**Metal tariff.** *Eng & Min J* 96:654-5 O 4 '13**Metal, tin plate and sheet prices for 15 years, 1898-1912.** *Iron Age* 91:48 Ja 2 '13**New iron, steel and metal tariff rates.** *Iron Age* 92:723-7 O 2 '13**New tariff bill.** *Iron Age* 91:896-7 Ap 10 '13**Tariff hearings at Washington on metal schedule.** *Iron Age* 91:280 Ja 23 '13**Tariff on metals.** *Metal Ind n s* 11:219-20 My '13**Underwood-Simmons metal tariff schedule.** *Iron Age* 91:1519a-1519d Je 26 '13**Underwood-Simmons tariff bill in the Senate.** *Iron Age* 92:133-7 Jl 17 '13

See also Copper industry and trade; Iron industry and trade; Scrap metal; Steel industry and trade

Metal trades association. *See* National metal trades association**Metal waste**

- Benefit of melting over platinum clips and fillings in your own factory. M. Adelstein. *Metal Ind n s* 11:424-5 O '13

See also Scrap metal

Metal work

- Evolution of flatware blanks. C. W. Cook. *il Metal Ind n s* 11:199-200 My '13
- Machining of aluminum and white metals. K. Deinhardt. *Mach* 19:570 Ag '13
- Methods of finishing metal surfaces. E. K. Hammond. *il Mach* 19:852-4 Jl '13
- Progress made in scraping metal surfaces. L. J. Krom. *il Metal Ind n s* 11:521-2 D '13

See also Brass founding; Bronze; Bronzes; Bushings; Dies; Hardware; Ironwork; Keys and keyways; Metal coloring; Metal laths; Pewter; Pickling (metals); Punching machinery; Sheet-metal work; Slotting machines; Solder and soldering; Tanks; Welding

Metal work, Artistic

- Importance of design in the development of the art metal industry. A. F. Saunders. *il Metal Ind n s* 11:15-6 Ja '13
- Influence of style on the art metal work of modern times. A. F. Saunders. *il Metal Ind n s* 11:332-3 Ag '13

Metal work, Plate. *See* Plate metal work**Metallic films.** Production and properties of. *Sci Am S* 75:151 Mr 8 '13**Metallic furniture.** *See* Furniture, Metallic**Metallography**

- Condenser-tube corrosion. *il Power* 38:531-3 O 14 '13
- Crystalline growth of strained ferrite. A. Sauveur. *il Iron Age* 91:258-60 Ja 23 '13
- Crystallization of steel through fatigue. F. Rogers. *Iron Age* 92:551-5 S 11 '13
- Grain growth in silicon steel. W. E. Rudner. *il Am Inst Min E Bul* 84:2805-22 D '13
- Gray iron mixtures for motor castings. H. E. Swan. *il Foundry* 41:474-8 N '13; *Same.* *Iron Age* 92:803-7 O 23 '13; *Same.* *Iron Tr R* 53:963-8 N 27 '13
- Heat-treatment of carbon steel castings. J. H. Hall. *il Iron Tr R* 53:81-4 Jl 10 '13
- Malleable iron castings for automobile work. E. Touceda. *il Automobile* 28:1260-3 Je 19 '13; *Same.* *Iron Age* 91:1426-9 Je 12 '13; *Same.* *Iron Tr R* 52:1358-63 Je 12 '13; *Same.* *Foundry* 41:276-80 Jl '13; *Same cond. Ind Eng* 13:408-9 S '13
- Metallography of carbon. *Met & Chem Eng* 11:619 N '13
- Micrometry as applied to alloys. *Met & Chem Eng* 11:619-21 N '13
- Microscope in the iron and steel industry. A. Sauveur. *il Iron Tr R* 52:1303-7 Je 5 '13; *Same cond. Iron Age* 91:1370-1 Je 5 '13
- Microscopic revelations of steel structures. E. F. Lake. *il Mach* 19:690-4 My '13

Metallography *Continued.*

Microstructure of German silver. O. F. Hudson. *il Metal Ind n s* 11:209-10, 253-4 My '13

Microstructure of sintered iron-bearing materials. B. G. Klugh. *il Am Inst Min E Bul* 77:813-28 My '13

Notes on the metallography of refined copper. E. S. Bardwell. *il Am Inst Min E Bul* 77:1129-41 Jl '13

Sulphide ores of copper: some results of microscopic study. L. C. Gratton. *il Am Inst Min E Bul* 77:711-58 My '13; Discussion. 77:7 8-811 My '13

Use of the microscope in the study of metals. E. E. Cone. *il Iron Age* 12:840-2 O 16 '13

See also Annealing

Metallurgical laboratories

Dominion of Canada ore dressing and metallurgical laboratory, Ottawa. *Eng & Min J* 95:1046 My 24 '13

Metallurgical laboratories. *Eng & Min J* 95:1161-2 Je 7 '13

Metallurgy

Great Falls, Mont. reduction works. *il Eng & Min J* 96:677-8 O 11 '13

Hydrometallurgy. R. Chauvenet. *Met & Chem Eng* 11:486-91 S '13

Hydrometallurgy and chlorination: answer to Dr. Chauvenet. J. L. Malm. *Met & Chem Eng* 11:669 D '13

Hydrometallurgy--joys of its theory, woes of its practice. W. F. Bleeker. *Met & Chem Eng* 11:538-9 O '13

Magnetite in mattes and slags. E. W. Walter. *Eng & Min J* 15:213-4 Ja 25 '13

Metallurgical costs at the Homestake. *Met & Chem Eng* 11:50-1 Ja '13

Metallurgy of the Homestake ore. A. J. Clark and W. J. Sharwood. *il map Eng & Min J* 95:161-6, 215-9 Ja 18-25 '13

New desulphurizing method: sulphur removed by distillation into its elemental forms. W. A. Hall. *Eng M* 45:576-8 S '13

New factor in metal failures. E. A. Lewis. *Metal Ind n s* 11:7 Ja '13

Notes on chemistry and metallurgy in Great Britain. *See* monthly numbers of Metallurgical and chemical engineering

Notes on metallurgy in British Columbia in 1912. E. Jacobs. *Met & Chem Eng* 11:29-30 Ja '13

Precipitate melting at the New Belmont mill, Tonopah, Nev. A. H. Jones. *il Eng & Min J* 95:1197-8 Je 11 '13

Reclamation of non-ferrous metals at Westinghouse electric & mfg. co.'s plant, Pittsburgh. *il Foundry* 41:130-4 Ap '13

Relative importance of principles and practice in education. J. Douglas. *Met & Chem Eng* 11:377-80 Jl '13

Speiss as a precious metal collector. *Eng & Min J* 95:167-8 Ja 18 '13

Synopsis of recent chemical and metallurgical literature. *See* monthly numbers of Metallurgical and chemical engineering

Temperature of certain operations in the metallurgy of copper and lead. G. H. Clevenger. *diags Met & Chem Eng* 11:447-9 Ag '13

Western metallurgical field. *Met & Chem Eng* 11:68-9 F '13

See also Alloys; Assaying; Blast furnace gas; Blast furnaces; Chemistry, Technical; Copper metallurgy; Cyanide process; Electrometallurgy; Flotation process; Furnaces; Gold metallurgy; Iron metallurgy; Lead metallurgy; Magnetic separation of ores; Metallurgical laboratories; Metals; Ore treatment; Ores; Refractory materials; Smelting; Steel metallurgy; Tin metallurgy; Zinc metallurgy

Metals

American soc. for testing materials: papers on metals. *Eng N* 70:71-6 Jl 10 '13

Annual meeting of British institute of metals, London, 1913; abstracts of papers presented. *Met & Chem Eng* 11:179-80 Ap '13

Engineering materials. C. A. McAllister. *Int Marine Eng* 18:53-5 F '13

Hardness of metals. T. A. Eastick. *il Sci Am S* 75:277-8 My 3 '13

International atomic weights. *Eng & Min J* 15:190 Ja 18 '13

Metals in antiquity. *Sci Am S* 75:16 Ja 4 '13

Misuse and failure of metals and alloys. T. V. Hughes. *Sci Am* 108:174 F 22 '13

New factor in metal failures. E. A. Lewis. *Sci Am S* 76:96 Ag 9 '13

Non-ferrous metals. *Iron Age* 92:51-2 Jl 3 '13

Passivity of metals: symposium before the British Faraday society. *Met & Chem Eng* 11:679-83 D '13

Resistivity of a few metals through a wide range of temperature. E. F. Northrup and V. A. Suydam. *J Fr Inst* 175:153-61 F '13

Ultimate source of metals. B. Stevens. *Am Inst Min E Bul* 75:331-13 Mr '13

Use of ammonia in bringing metal into solution. C. D. King. *Sci Am S* 75:16 Ja 4 '13

Worlds production of principal metals. *Eng & Min J* 95:712-4 Ap 12 '13

See also Alloys; Aluminum; Annealing; Assaying; Corrosion and anti-corrosives; Electrometallurgy; Foundry practice; Metal trade; Metal work; Metallography; Metallurgy; Mineralogy; Mines and mineral resources; Ore deposits; Pickling (metals); Slag; Smelting; Solder and soldering; Welding; Wire; also names of metals and alloys, e. g. Babbitt metals; Copper; Iron; Lead; Manganese; Nickel; Silicon; Steel; Vanadium; Zinc

Testing

Modern experiments and experiences with materials for turbine blades for high temperatures. Schulz. *Am Soc M E J* 33:1187-8 Jl '13

Property of toughness in metals. A. F. Shore. *il diag Iron Age* 92:16-7 Jl 3 '13; Same. *Iron Tr R* 53:86-8 Jl 19 '13

See also Ore testing

Metals, Cutting of. *See* Metal cutting

Metals, Fatigue of. *See* Fatigue of metals

Metalwork. *See* Metal work

Meteorites

Carriers of messages from other worlds. H. B. Collier. *il Sci Am S* 76:365-6 D 6 '13

Meteorological instruments

See also Barometer

Meteorology

Meteorology as an exact science. V. Bjerknes. *Sci Am S* 75:147 Mr 8 '13

New units in aerology. A. McAdie. *il Sci Am S* 76:357 D 6 '13

See also Thunderstorms; Tornadoes; Weather forecasts; Winds

Meteorology, Aeronautical

Airman and the weather: aeronautic meteorology. C. F. Talman. *il Sci Am* 109:94 Ag 2 '13

Germany's aeronautical weather bureau. *Sci Am* 108:262 Mr 22 '13

Meteorology, Agricultural

International commission on agricultural meteorology. *Sci Am* 108:563 Je 21 '13

Rise of agricultural meteorology. *Sci Am* 108:112 F 1 '13

Meters

Electrical energy meter. *il plan Power* 37:256-7 F 25 '13

Improved flow meter. *il diag Power* 38:192-3 Ag 5 '13; Same *Iron Age* 92:236 Jl 31 '13; Same. *Int Marine Eng* 18:411-3 S '13; Same cond. *Ry Age (Mech ed)* 87:567-8 S '13

Metering and recording the flow of fluids. J. W. Ledoux. *il diags Met & Chem Eng* 11:403-7 Jl '13

Reducing power plant waste by metering. S. Rice. *il plan Iron Tr R* 53:1166-7 D 18 '13

See also Electric meters; Gas meters; Liquid meters; Steam meters; Water meters

Meters, Gas. *See* Gas meters

Meters, Steam. *See* Steam meters

- Methane.** See Firedamp
- Metric system**
Metric system and the average man. In: Eng 13:370 S '13
New international carat of two hundred milligrammes. G: F: Kunz. Sci Am S 76:82-3, 98-9 Ag 9-16 '13
Simple approximate metric conversions. A. A. Cary. Power 37:217-9 F 18 '13
- Meumann, Ernst, 1862-**
Teaching from the child's point of view: a new science created by Prof. Meumann. P. R. Radosavljevich. por Sci Am 100:141 Ag 23 '13
- Mexico**
Commerce
Business situation in Mexico. W: M. Rendón and V. Gonzales. Am Ind 14:19-23 O '13
Description and travel
Arches of Mexico: relics of early Spanish engineering. M. W. Hudson. il Sci Am 109: 28 J1 12 '13
Engineer's stage journey through Arizona and Mexico in 1886. C. L. Annan. map Eng N 69:1128-30 My 29 '13
Economic conditions
Engineer's reminiscences of Mexican railway building. M. E. Schmidt. Eng M 45:683-94 Ag '13
National railways of Mexico. map Ry Age 55: 1211-2 D 26 '13
Industries and resources
Mines of Mexico. H. A. Megraw. il Eng M 46:37-45 O '13
Patience and cheap labor in Mexican mining. W: H. Yeandle. Eng & Min J 56:1127-8 D 13 '13
Revolution, 1913
Assault on the Lucky Tiger mine. Eng & Min J 95:890-1 My 3 '13
How Mexican rebels destroy railways and bridges. G. E. Weeks. il Sci Am 109:209-10 S 13 '13
- Miami copper company**
Miami copper company in 1912. J: P. Chan-ning. Eng & Min J 95:59-60 Ja 11 '13
Report for 1912. Eng & Min J 95:763-4 Ap 12 '13
- Miami valley**
Flood notes from the Miami valley. il map Eng N 69:924-31 My 1 '13
- Mica**
India mica industry. A. F. Dixon. il Am Inst Min E Bul 77:859-77 My '13
Mining and treatment of feldspar and kaolin. A. S. Watts. il U S Bur Mines Bul 53: 1-160 '13
Tariff hearings on schedules B and C. Elec W 61:340 F 15 '13
- Micarta**
New insulating material. il Elec Ry J 42:73 J1 12 '13; Elec W 62:103-4 J1 12 '13; Power 38:169 S 30 '13; Mach 19:942 Ag '13; Eng M 46:sup 2-3 N '13
- Mice.** See Field mice
- Michigan**
Industries and resources
Applied geology, Michigan iron ranges. P. B. McDonald. diags Eng & Min J 96:208-10 Ag 2 '13; Same. Sci Am S 76:235 O 11 '13
Developments on Michigan iron ranges. P. B. McDonald. il Eng & Min J 96:335-9 Ag 23 '13
- Michigan Central railroad**
Operation of Michigan Central in 1912. Ry Age 51:659-60 Mr 21 '13
67th annual report, 1912. Ry Age 51:696-7 Mr 21 '13
- Michigan master plumbers association**
21st annual convention at Saginaw. Mar. 1913. Dom Eng 62:376-82 Mr 29 '13
- Michigan smelting & refining co., Detroit, Mich.**
Description of the development. il Metal Ind n s 11:1-6 Ja '13
- Michigan united traction company**
Standardization on the Michigan united trac-tion. il Elec Ry J 41:478-9 Mr 15 '13
- Micrographic analysis.** See Metallography; Steel—Analysis
- Micrometers**
Bench micrometer. W. T. Murphy. diag Am Mach 38:669-70 My 22 '13
Improvement for the micrometer-microscope. W. Souder. Eng N 69:366 F 20 '13; Same. Am Mach 38:783 My 8 '13
Micrometer height gage. W: C. Betz. diag Mach 19:803-4 Je '13
Three point micrometer and its use. il diag Mach 19:688 My '13
- Micro-motion study by means of chronometer and moving picture machine.** il Ind Eng 13: 1-4 Ja '13
- Micro-organisms**
Micro-organisms of the soil. G: T. Moore. Sci Am S 75:74-5 F 1 '13
See also Bacteriology
- Microphones**
Micro-monophone. il Sci Am 108:248 Mr 15 '13
- Micropyrometer.** See Pyrometers and pyrom-etry
- Microscopes and microscopy**
Applications of the microscope to industrial work: meeting of the New York section of the American electrochemical society. Met & Chem Eng 11:61-22 N '13
Comparison microscope. W. Thoenner. il Sci Am 108:158 F 15 '13
Early use of the microscope at iron and steel works. P. Kreuzpointner. Iron Age 92:351 Ag 14 '13
Hints for young microscopists. N. Barden. il Sci Am 108:435 My 10 '13
Improved metallurgical microscope. W. Tas-sin. il Met & Chem Eng 11:56-8 Ja '13
Improvement for the micrometer-microscope. W. Souder. Eng N 69:366 F 20 '13; Same. Am Mach 38:783 My 8 '13
Microscope in the iron and steel industry. A. Sauvour. il Iron Tr R 52:1303-7 Je 5 '13; Same cond. Iron Age 91:1376-1 Je 5 '13
Microscopist in the field. W. E. Koch. Eng & Min J 95:171-6 Ja 18 '13
Microscopy in economic geology. R: Beck. Eng & Min J 95:1087-9 My 31 '13
Modern microscopical optics: the limitations of the microscope. C. Metz. Sci Am S 75: 162-3 Mr 15 '13
Power of a microscope. C. W. Nieman. Sci Am 108:11 Ja 4 '13
Size of the finest organic structures. W. Stempell. il Sci Am S 75:260 Ap 26 '13
Use of the microscope in mining engineer-ing. F: W. Apper. il Am Inst Min E Bul 78:1011-22 Je '13; Discussion. 83:2743-1 N '13
Use of the microscope in the study of metals. E. E. Conz. il Iron Age 92:806-2 O 16 '13
See also Goniometers; Metallography
- Microscopy.** See Microscope and microscopy
- Middletown, Ohio**
Flood-protection plans for Ohio cities. J: W. Hill. Eng Rec 68:599 N 29 '13
- Mildew**
Notes on the formation and inhibition of mildew in paints. H: A. Gardner. il J Fr Inst 175:59-64 Ja '13
- Military aeronautics.** See Aeronautics, Military
- Military architecture**
See also Armories; Arsenals; Barracks
- Military art and science**
Night attacks in modern warfare: shells that illuminate the enemy. H. Bannerman-Phil-lips. il Sci Am 109:282 O 11 '13
See also Aeronautics, Military; Artillery; Coast defense; Mines, Military
- Military automobiles.** See Automobiles, Military
- Military engineering**
See also Coast defense; Explosives, Mil-itary; Mines, Military

- Military explosives.** See Explosives, Military
- Military history**
 Military history and the science of business administration. E; D; Jones. Eng M 44:1-6, 185-90, 321-6 O-D '12
- Military hygiene**
 Humanitarian side of war: Red cross sanitary equipment for the field. W. J. Murray. il Sci Am S 75:412-3 Je 28 '13
- Military medicine.** See Medicine, Military
- Military mines.** See Mines, Military
- Military reconnaissance**
 Achievements of military aircraft. H. Bannerman-Phillips. il Sci Am 108:306-7 Ap 5 '13
- Milling machines**
 Common limitation of machine tool channel room for chips. C; E. Smart. il Mach 19:838-9 Jl '13
 Complete milling machine test. plans Iron Age 91:98-100 Ja 2 '13
 Constant-speed milling machine. il Iron Age 91:1354 Je 5 '13
 Cross-drilling and milling attachments. D. T. Hamilton. il Mach 19:619-22 Ap '13
 Experiments in milling. Ind Eng 13:81 F '13
 Hooper duplex milling machine. il Iron Tr R 53:258 Ag 7 '13
 Ingersoll open-side horizontal-spindle milling machine. il Mach 19:67-8 S '12
 Italian milling machine. J. Horner. il diag Mach 20:107-8 O '13
 Kemp-Smith milling machine. il Iron Tr R 52:745-6 Mr 27 '13; Am Eng 87:217 Ap '13
 LeBlond heavy-duty cone-type milling machine. il Mach 19:62-4 S '12
 LeBlond heavy duty miller. il diag Am Mach 38:799-803 My 15 '13
 Lees-Bradner thread milling machine. il Mach 19:474-5 F '13
 Locomotive link milling machine. il Am Eng 87:46 Ja '13; Iron Tr R 52:152 Ja 9 '13
 Milling motor truck spring chairs. G; E. Pope. diags Mach 19:617-8 Ap '13
 Milling operations simultaneously performed. S. R. Stone. il Iron Tr R 53:688 O 16 '13
 New style of duplex milling machine. il Iron Age 91:531 F 27 '13
 Newton multiple-spindle milling machine. il Mach 19:817-8 Je '13
 Rapid production with milling machines. il Iron Age 92:286-8 Ag 7 '13
 Stearns-Knight cranks—milling and drilling. il Automobile 29:279 Ag 14 '13
 Tripling the output of a milling machine by motion study. il Ind Eng 13:169 Ap '13
 Variable speed mechanism for milling machine table. il diags Mach 19:442 F '13
See also Gear cutting; Machine tools
- Milling of ores.** See Crushing machinery; Ore treatment
- Mills and millwork**
 Design of steel mill buildings. R. Fleming. Eng Rec 68:467-9, 491-3 O 25-N 1 '13
See also Factories; Planing mills; Saw mills
- Milne, John**
 Sketch. Sci Am 109:134 Ag 16 '13
- Milwaukee, Wisconsin**
Bridges
 Lift bridges of Milwaukee. H; G. Tyrrell. il Munic Eng 45:2-7 Jl '13
Politics and government
 Milwaukee's non-partisan administration. Munic Eng 44:423-4 My '13
Rapid transit
 Service order for Milwaukee lines. Elec Ry J 42:1182-6 D 6 '13
Water supply
 Classification of water consumption in Milwaukee, Wis. Eng N 69:1319 Je 26 '13
- Mine accidents**
 Accidents in British mines. Eng & Min J 95:435-6 F 22 '13
 Accidents in metal mines in 1911. Eng & Min J 95:669-70 Mr 29 '13
 Accidents in metal mines of the United States. Eng & Min J 95:769-70 Ap 12 '13
 Answers to examination questions asked at examination for mine foreman and assistant foreman held at Pottsville, Pa., 1913. Colliery 33:651-2 Je '13
 Comparative safety of electric and fuse blasting. Eng & Min J 95:1014 My 17 '13
 Electric haulage accidents. Eng & Min J 95:661 Mr 29 '13
 Metal mine accidents in British Columbia. F; L. Hoffman. Eng & Min J 96:931-2 N 15 '13
 Mine accidents in Montana. Eng & Min J 95:213-1 Ja 25 '13
 Mysore shaft accident. Eng & Min J 96:876 N 8 '13
 Rand mining accidents and deaths in 1912. Eng & Min J 96:897-9 O 11 '13
 Sources of electrical accidents in mines. H. H. Clark. Eng M 45:424-5 Je '13
 Two hoisting accidents and their lesson: Ellison hoist and Leonard mine. Eng & Min J 95:1111-2 My 31 '13
 Who is responsible? W; H. and J. T. Reynolds. Colliery 33:560-1 My '13
 Winding accidents on the Rand. Eng & Min J 96:1111 D 13 '13
See also Coal mines and mining—Accidents and explosions; Firedamp; Mine explosions; Mine fires; Mine rescue work; Mining engineering—Safety measures; Safety lamps
- Mine accounting**
 Mining cost accounts of the Anaconda copper mining co. H. T. Van Ellis. Am Inst Min E Bul 78:1047-51 Je '13
 Outline of mine accounting. H; B. Fernald. Eng & Min J 95:5-8 Ja 4 '13
- Mine air**
 Humidity of mine air. J. de B. Hooper. Colliery 33:508 Ap '13
See also Mine gases; Mine explosions
- Mine cages.** See Mine hoisting
- Mine cars**
 Advantages of steel mine cars. G. P. Blackiston. il Colliery 31:172-3 O '13
 Federal gable-bottom ore car. diags Eng & Min J 95:17 Ja 4 '13
 Hyatt roller bearings applied to mine cars. J. A. Schroeder. Colliery 34:173 O '13
 Mine-car construction. W. D. Hockensmith. Colliery 34:175-6 O '13
See also Mine haulage
- Mine cave commission**
 Anthracite mine cave problem. Colliery 34:264-5 D '13
- Mine construction**
 Bulldozing chute and underswung gate. G. J. Jackson. il Eng & Min J 96:735-6 O 18 '13
 Concrete in mine construction. A. F. Allard. Colliery 33:623-4 Je '13; Same cond. Eng N 69:1167 Je 5 '13
 Concrete station at Champion mine. plans Eng & Min J 96:641-2 O 4 '13
 Fireproof construction in mines. Concrete Cem 3:64 Ag '13
 Hydraulic filling as roof support. G; Knox. Colliery 34:225-8 N '13
 Modern steel-tipple design. J; A. Garcia. plans Eng N 69:1316-7 Je 26 '13
 Refining No. 2 Hamilton shaft, Chapin mine, Iron Mountain, Mich. plans Eng & Min J 96:680-2 O 11 '13
 Safety rules—structures. Eng & Min J 96:596 S 27 '13
 Steel in mine construction. C. Scholz. Eng N 69:1166-7 Je 5 '13; Same. il diag Colliery 34:30-2 Ag '13
See also Mine shafts; Mine timbering
- Mine costs.** See Mining costs
- Mine drainage**
 Bailing through an untimbered shaft. D. Muir. il plans Eng & Min J 95:991-6 My 17 '13
 Driving a long adit at Bonanza, Colo. W. C. Russell. Eng & Min J 95:272 F 1 '13
 Geological drainage problem. R. Heap. maps Eng & Min J 96:1265-11 D 27 '13
See also Shaft sinking

Mine employees. See Miners

Mine explosions

- Answers to examination questions, West Virginia, 1912. Colliery 33:587-90 My '13
Causes of coal-dust explosions. C. M. Young. Eng M 44:771-3 F '13
Cincinnati mine (Pa.) disaster. W. Z. Price. map Colliery 33:636-43 Je '13
Effect of incombustible dusts on the explosion of gases. H. B. Dixon and C. Campbell. Sci Am S 76:118-9 Ag 23 '13
Impressing upon the miner facts regarding explosions. J. Verner. Mines & Min 33: 313-5 Ja '13
Some features of mine disasters. G. S. Rice. Colliery 33:361-2 F '13

See also Coal dust; Coal mines and mining—Accidents and explosions; Mine accidents; Mine fires; Mine gases

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- Coal mine fires. Colliery 33:690-2 Jl '13
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Fire prevention in metalliferous mines. G. J. Young. Eng M 44:604-6 Ja '13
Fire protection of mines. G. E. Lyman. Colliery 33:624-7 Je '13
Fire protection of mines. J. Taylor. Colliery 34:28-9 Ag '13
Mine fires. Colliery 34:16 Ag '13
Mine fires and their prevention. H. M. Wilson. il Sci Am S 75:404-5 Je 28 '13
North Mt. Lyell mine fire. Mines & Min 33: 330-1 Ja '13
Report of commission on Mount Lyell fire. Eng & Min J 95:820-1 Ap 19 '13
Some features of mine disasters. G. S. Rice. Colliery 33:361-2 F '13

See also Firedamp; Mine accidents; Mine explosions; Safety lamps

Mine foremen. See Mine management; Mining engineering

Mine gases

- Ability of the acetylene flame. E. M. Chance. Colliery 34:231-41 N '13
Apparatus for testing mine gases. F. C. Perkins. il Sci Am 109:268 O 4 '13
Barometric pressure and mine gases. Colliery 33:477-9 Ap '13
Chart classifying mine gases. C. K. Gloman. Colliery 33:sup Ap '13
Detecting poisonous gases by their action upon small animals. G. A. Burrell and F. M. Seibert. il Sci Am S 75:385, 389-90 D 20 '13
Gases met with in coal mines. Colliery 33: 445-8, 492-5, 564-6, 631-2 Mr-Je '13
Use of the barometer in mining. F. Z. Schellenberg. Colliery 33:590-1 My '13

See also Carbon monoxide; Firedamp; Mine explosions; Mine fires; Mine ventilation; Safety lamps

Mine haulage

- Animal haulage in mines. B. S. Randolph. il Colliery 34:139-42 O '13
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Availability of motor trucks for mines. Eng & Min J 96:731-4 O 18 '13
Compressed-air mine haulage. W. Z. Price. il Colliery 34:142-5 O '13
Description of tonnage map. C. Robinson. diag Colliery 33:603-4 Je '13
Efficiency in mine haulage. W. H. Bines. Colliery 24:171-2 O '13
Electric mine haulage. E. A. Lof. il Colliery 34:301-6 D '13 (to be cont)
Experience with storage-battery haulage underground. S. A. Easton. Eng & Min J 96: 990 N 22 '13
Haulage on a road 3,600 feet long that falls 350 feet 6 inches. P. M. Weigle. Colliery 34: 177-8 O '13
Mining plant of Petros coal co.; the gravity plane and five-car rotary dump. A. W. Evans. diag Colliery 34:151-2 O '13
Motor trucks for mines. O. H. Sonne. Eng & Min J 96:457 S 6 '13
Motor trucks in metal-mining industries. R. W. Hutchinson, jr. il Eng M 46:365-79 D '13

Motor trucks in mining. D. Ross. Eng & Min J 96:366-7 Ag 23 '13

Moving minerals in thin flat beds. il diag Colliery 33:310-2 Ja '13

Ore transportation. Eng & Min J 96:465-6 S 6 '13

Practical mule haulage. A. E. Thompson. Colliery 34:166-7 O '13

Reconstruction of Mahanoy plane, Philadelphia & Reading Ry. co. J. S. Ward. il plan Eng N 70:1220-7 D 18 '13

Repairing a large rope sheave. H. L. Handley. diag Colliery 33:604-5 Je '13

Rope haulage at Vesta No. 4 mine, California. Pa. W. Z. Price. il Colliery 34:135-8 O '13

Safety rules—electrical haulage underground. Eng & Min J 96:303-4 Ag 16 '13

Single-track cableway in Sardinia. E. Praetorius. il Eng & Min J 96:1009-10 N 29 '13

Slope haulage at Sayreton, Alabama. F. G. Morris. il Colliery 34:155-6 O '13

Storage battery haulage costs. Eng & Min J 96:980 N 22 '13

Two representative rope-haulage engines built by the Wellman-Seaver-Morgan co. S. H. Pitkin. il Colliery 34:174-5 O '13

Unusual design of overhead tramway at a Utah mine. W. R. Elliott. il Eng & Min J 96:293-6 Ag 16 '13

Wire rope haulage. A. Briggs. Colliery 34: 173-4 O '13

See also Locomotives, Mine; Mine cars; Mine hoisting; Mine tracks

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- Automatic bucket tippie. D. A. Cavagnaro. plan Eng & Min J 95:898-9 My 3 '13
Bailing through an untimbered shaft. D. Muir. il plans Eng & Min J 95:991-6 My 17 '13
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Chain-driven convertible hoist. E. E. Carter. diag Eng & Min J 96:115 Jl 19 '13
Changing the hoisting rope. B. Lloyd; F. W. Davis. Colliery 33:575-6 My '13
Comparative costs of Rand hoisting systems. Eng & Min J 95:1199-1200 Je 14 '13
Compressed air system of the Anaconda copper mining co., Butte, Mont. B. V. Nordberg. il Am Inst Min E Bul 81:2225-87 S '13
Design of pit head pulleys. J. S. Watts. diag Mach 19:511-2 Mr '13
Efficiencies of two Rand electric hoists. J. N. Bulkeley. il Eng & Min J 96:211-2 Ag 2 '13
Electric power for underground winding at the new Heriot mine, Transvaal. il Eng & Min J 95:19 Ja 4 '13
Electric vs. compressed air hoists. K. A. Pauly. il Eng & Min J 95:653-8 Mr 29 '13
Electric winding at the West Rand mines, South Africa. il Elec W 61:1054-5 My 17 '13
Four-decked cage at St. Michael. il plans Colliery 34:5-10 Ag '13
Hoisting practice in Wisconsin zinc fields. W. F. Boericke. Eng & Min J 95:25-6 Ja 4 '13
Hoisting ropes. W. D. Lloyd. Colliery 33:578-9 My '13
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Safety catch and bucket release. diag Eng & Min J 95:613 Mr 22 '13
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Safety rules—ropes and sheaves. Eng & Min J 96:788 O 25 '13
South African electric hoisting systems. Eng & Min J 95:608 Mr 22 '13
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Turn sheaves at the Lake mine, Mich. K. A. May. il Eng & Min J 95:643-4 Mr 29 '13
Two hoisting accidents and their lesson: El-lison hoist and Leonard mine. Eng & Min J 95:1111-2 My 31 '13
Use of bucket crossheads. W. J. Roberts. Eng & Min J 96:893 N S '13
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Windlass for timber shaft. L. D. Davenport. plan Eng & Min J 95:756 Ap 12 '13

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Mine inspection

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Answers to examination questions for state mine inspector, Colorado, 1911. Colliery 33:319-22, 369-71, 456-9 Ja-Mr '13

Law regarding mine inspectors. Colliery 33:574 My '13

Selection of state mine inspectors. Colliery 33:346-7 F '13

Mine labor. *See* Miners**Mine lamps.** *See* Safety lamps**Mine lighting**

Dangers of acetylene lamps. D. H. Somerville. Colliery 33:372 F '13

Plummet lamp. il Colliery 33:526-7 Ap '13

Scores for holding candles. il Eng & Min J 95:849-50 Ap 26 '13

Mine locomotives. *See* Locomotives, Mine**Mine management**

Contract systems in Michigan copper mines. Eng & Min J 96:1177-8 D 20 '13

Efficiency engineering applied to mining. G. A. Collins. Ind Eng 13:166-8 Ap '13

Efficiency in mining. W. J. Crocker. Colliery 33:395-6 F '13

Magnetite mines near Port Henry, N. Y. L. O. Kellogg. il Eng & Min J 96:863-8 N 8 '13

Organization as affecting mining. A. J. Moorshead. Colliery 33:627-8 Je '13

Relation of engineers to mine foreman. Colliery 33:577 My '13

Scientific management for mines. Eng & Min J 96:514 S 13 '13

Successful mine foreman from four view points. H. La Viers. Colliery 33:510-1 Ap '13

Mine maps

Applied geology in the Butte mines. F. A. Linforth. Am Inst Min E Bul 83:2611-23 N '13

Complete mine maps. Colliery 34:91-2 S '13

Folding maps of Cowee and Spruce-pine region of North Carolina. A. S. Watts. U S Bur Mines Bul 53:pl II & III '13

See also Mine surveying

Mine rescue work

Cincinnati mine (Pa.) disaster. W. Z. Price. map Colliery 33:636-43 Je '13

Collapsible skeleton emergency bucket. diags Eng & Min J 96:262 Ag 9 '13

Detecting poisonous gases by their action upon small animals. G. A. Burrell and F. M. Seibert. il Sci Am S 76:385, 389-90 D 20 '13

Emergency car—Colorado fuel and iron co. il plan Colliery 33:483-4 Ap '13

First aid in Kentucky. C. J. Norwood. Colliery 33:484 Ap '13

First aid to the injured. W. Z. Price. il Colliery 34:207-23 N '13

First aid truck for miners made by White company. il Automobile 29:1161 D 18 '13

German rescue organization. B. Breyhan. il Colliery 34:284-6 D '13

Kentucky first-aid team meet. Colliery 34:22 Ag '13

Mechanical resuscitation: action and operation of the pulmotor in mine-rescue work. H. E. Bertling. il Eng M 45:731-2 Ag '13

Mine recovery telephone equipment. il Colliery 34:62-3 Ag '13

Mine rescue telephone equipment. il Sci Am 109:340 N 1 '13

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Telephone equipment for mine rescue work il Elec W 62:204 Jl 26 '13

Training with mine-rescue appliances. J. W. Paul. Eng M 44:946-8 Mr '13

See also Mine accidents; Mining engineering—Safety measures

Mine sampling. *See* Ore sampling**Mine sanitation**

Dust in Johannesburg mines. Eng & Min J 96:777 O 25 '13

Hookworm disease at southern mines. J. W. Pryor. il Colliery 33:558-60 My '13

New Zealand safety commission report. Eng & Min J 95:841-2 Ap 26 '13

Sanitation in mines and mine towns, Lake Superior region. W. H. Moulton. Iron Age 92:475-6 Ag 28 '13; Same. Eng & Min J 96:391-2 Ag 30 '13

See also Mine ventilation; Mining camps

Mine shafts

Aligning concrete forms in shaft. R. H. Dickson. diags Eng & Min J 96:259 Ag 9 '13

Concrete lining of the Kingdon shaft. Globe. Ariz. diags Eng & Min J 95:177-9 Ja 18 '13

Concrete shaft station, Wolverine mine. C. T. Rice. plan Eng & Min J 96:397-9 Ag 30 '13

Concreting methods in Michigan copper shafts. diags Eng & Min J 96:66-7 Jl 12 '13

Construction of no. 3 shaft, Negaunee mine. S. R. Elliott. diags Eng & Min J 95:265-71 F 1 '13

Hancock shaft station. C. T. Rice. plan Eng & Min J 95:888-90 My 3 '13

Harvey safety shaft gate. diag Eng & Min J 95:230 Ja 25 '13

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Repairing a 12-in. shaft without removal. il Eng & Min J 95:1281-2 Je 28 '13

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Safety rules—the shaft. Eng & Min J 96:67-8 Jl 12 '13

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Shaft timbering in swelling ground. W. H. Storms. plan Eng & Min J 96:488-9 S 13 '13

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System of sand-filling for deep mine shafts. plan Eng N 69:1324-5 Je 26 '13

Why leave shaft pillars? Mines & Min 33:305 Ja '13

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Mine signals

Bell and lamp signal systems. S. F. Walker. plans Elec W 61:150-1, 199-201, 251-3 Ja 18-F 1 '13

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Difficulties in mine surveying. H. G. Henderson. il Colliery 33:359-60 F '13

Laying out Cananea underground curves. A. C. Harris. diag Eng & Min J 96:1027-8 N 29 '13

Mine surveying wrinkles. W. J. Crocker. Mines & Min 33:300-1 Ja '13

Underground survey. W. N. Cole. Colliery 33:519-20 Ap '13

U. S. Geological survey topographic maps for the civil and mining engineer. E. G. Woodruff. Eng N 70:384-5 Ag 21 '13

Use of relief maps in mine surveying. H. G. Henderson. il Sci Am S 75:101-2 F 15 '13

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Changes in excise tax on profits from mining. Eng & Min J 95:488-9 Mr 1 '13

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- Depreciation to be deducted from mining company profits. Eng & Min J 96:1212 D 27 '13
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 Square-set framing at Butte. Il Eng & Min J 96:878-80 N 8 '13
 Timbering a main level. I. C. Parfitt. Colliery 34:257-8 N '13
 Timbering in the Butte mines. B. H. Dunshie. Il diags Am Inst Min E Bul 80:1511-21 Ag '13
 Top set slicing in the Chisholm district. L. D. Davenport. plan Eng & Min J 95:276-7 F 1 '13

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Mine tracks

- Concrete stringers for incline tracks. C. T. Rice. plan Eng & Min J 95:948-9 My 10 '13
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- New type of mine trolley. Il Eng & Min J 95:1182 Je 14 '13

Mine tunnels. *See* Mine drainage; Tunnels and tunneling

Mine valuation

- American iron-ore reserves; bases for their valuation. E. C. Eckel. Eng M 44:7-15 O '12
 Assessment of mines. P. J. Miller. Eng & Min J 96:369-71 N 22 '13
 Factors in the valuation of iron mines. J. R. Finlay. Iron Tr R 52:518-21 F 27 '13; Same. Am Inst Min E Bul 75:487-502 Mr '13; Same. Iron Age 91:654-6 Mr 13 '13; Excerpts. Eng & Min J 95:939-40 My 10 '13; Discussion. Am Inst Min E Bul 77:915-40; 82:2605-8 Mr, My '13
 Life factor in mine valuation. A. C. Key. Eng & Min J 95:1103 My 31 '13
 Valuation of iron mines. Eng & Min J 95:477-8 Mr 1 '13

Mine ventilation

- Answers to examination questions asked at examination for mine foreman and assistant foreman held at Pottsville, Pa., 1913. Colliery 33:653-4 Je '13
 Australian mine ventilation. Colliery 33:557 My '13
 Automatic door for ventilation control. H. S. Gieser. plan Eng & Min J 95:1048-9 My 24 '13
 Coal mine ventilation. A. King. Colliery 33:423-6 Mr '13
 Common sense mine ventilation. J. C. Gas-kill. Colliery 33:409-13 Mr '13
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 Facts and theories relating to fans. D. M. Mowat. plan Colliery 33:429-39 Mr '13
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 Humidifying the air-current. J. K. Johnston. plan Colliery 33:460 Mr '13

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 Mine humidification. D. Gerber. Il Colliery 34:229-31 N '13

Mine ventilation. Colliery 33:632-3, 712-3; 34:45-7, 112-1, 186-8, 248-9, 308-9 Je-D '13 (to be cont)

Pressure and velocity meter for mines. Colliery 34:300 D '13

Size of airway. D. B. Gregg. Colliery 33:581 My '13

Stopping ventilation at firing time. W. H. and S. Reynolds. Colliery 33:514-6 Ap '13

Too much ventilation. W. H. Booth. Colliery 33:419-20 Mr '13

Ventilating mines and removing gas. J. J. Rutledge. Colliery 34:81-6 S '13

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Mineral industries

- Bureau of mines report. Eng & Min J 95:189-90 Ja 18 '13

Mineral lands

- Leasing of mineral lands. W. Griffith. Colliery 34:167-9 O '13
 Our national resources and our federal government; discussion of paper of R. W. Raymond. Am Inst Min E Bul 74:319-29; 77:971-81 F, My '13

Mineral oils. *See* Petroleum

Mineral waters

- Warning against fraudulent radioactive water. Sci Am 109:287 O 11 '13

Mineralogy

- Halos in minerals; markings due to radium in rocks, and their significance. J. Joly. Il Sci Am S 75:132-5 Mr 1 '13
 Microscopist in the field. W. E. Koch. Eng & Min J 95:174-6 Ja 18 '13
See also Assaying; Metals; Mines and mineral resources; Rocks; also names of minerals, e. g. Coal; Diamonds; Feldspar; Mica

Miners

- Abstract of current decisions on mines and mining, October, 1912 to March, 1913. J. W. Thompson. U S Bur Mines Bul 61:28-63 '13
 Bath house at Cameron colliery, Shamokin, Pa. Il Colliery 33:679-80 Ji '13
 Butte versus Michigan. W. Lakeland. Eng & Min J 96:1085 D 6 '13
 College men underground. H. F. Davis. Eng & Min J 95:31-2 Ja 4 '13
 Contract systems in Michigan copper mines. Eng & Min J 96:1177-8 D 20 '13
 Cornish miner. P. B. McDonald. Eng & Min J 95:882 My 3 '13
 Drilling in the Michigan copper mines. Eng & Min J 96:915 N 15 '13
 Foreign mining costumes. C. L. Bryden. Il Mines & Min 33:324-5 Ja '13
 Johannesburg strike. Eng & Min J 96:434 S 6 '13
 Labor conditions at Fairbanks, Alaska. H. I. Ellis. Eng & Min J 96:1111-2 D 13 '13
 Lake Superior copper country strike. Eng & Min J 96:230 Ag 2 '13
 Lake Superior copper-country strike comments. Eng & Min J 96:411 Ag 30 '13
 Living conditions on the Lake Superior ranges. Il Iron Tr R 52:245-8 Ja 23 '13
 Michigan copper strike. Eng & Min J 96:301-2 Ag 16 '13
 Miners' strike on Vancouver Island. E. Jacobs. Eng & Min J 96:605-6 S 27 '13
 President Shaw of the Calumet & Hecla mining co. denies statements of J. A. Walker. Eng & Min J 96:742-3 O 18 '13
 Social conditions in the Black Hills. Eng & Min J 96:605 S 27 '13
 Strike at Mount Hope (N. J.) iron mines. Eng & Min J 95:1066-7 My 24 '13
 Strike in the copper-mining district of upper Michigan. T. Thomas. Eng & Min J 96:226-7 Ag 2 '13
 Theft of ore. G. L. Sheldon. Eng & Min J 96:932-3 N 15 '13
 Wage increases for mine employes. Iron Tr R 52:423 F 13 '13
 Wages in Mexico. Eng & Min J 96:177-8 Ji 26 '13

Miners —Continued.

Wages in the Michigan copper district. Eng & Min J 96:964 N 22 '13
 What the union has done for Butte, W: Lake-land. Eng & Min J 96:511-2 S 13 '13
 Who is responsible for accidents? W: H. and J. T. Reynolds. Colliery 33:560-1 My '13

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Fighting with dynamite and electricity. A. Gradenwitz. il diags Sci Am 109:488 D 27 '13

Mines and mineral resources

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Alaska

Mining in Alaska in 1912: abstract of report to U. S. Geol. S. Eng & Min J 95:130-3 Ja 11 '13; Same cond. Eng M 44:788-90 F '13

Arizona

History of the Copper Queen mines. Eng & Min J 95:525-30 Mr 8 '13
 Johnson-Dragon district, Arizona. Eng & Min J 95:648 Mr 29 '13
 Mining in Arizona in 1912. Eng & Min J 95:126-7 Ja 11 '13
 New developments at Jerome, Arizona. il Eng & Min J 96:145-7 Jl 26 '13
 Oro Blanco district of Arizona. M. C. Milton. il Eng & Min J 96:1005-7 N 29 '13

Australia

Mining in Australia in 1912. W. P. Geary. Eng & Min J 95:147-8 Ja 11 '13

Bolivia

Aramayo Francke mines, ltd. Eng & Min J 96:1229 D 27 '13
 Minerals of Bolivia. map Eng & Min J 96:636-8 O 4 '13
 South America through Yanqui eyes. Eng & Min J 96:623-4 Mr 22 '13

British Columbia

Mineral production of British Columbia. Eng & Min J 95:946 My 10 '13
 Mining in British Columbia in 1912. E. Jacobs. Eng & Min J 95:133-4 Ja 11 '13
 New field in British Columbia. Plomoso. Eng & Min J 96:894 N 8 '13

California

Geology of the Woody copper district, California. W: H. Storms. Eng & Min J 96:635 O 4 '13
 Mining in California in 1912. L: H. Eddy. Eng & Min J 95:117-8 Ja 11 '13
 Mining in Siskiyou county, Cal. Eng & Min J 96:585-6 S 27 '13
 Mother Lode region. L: H. Eddy. il map Eng & Min J 95:405-10 F 22 '13
 What has been the fume damage in California? L. H. Eddy. map Eng & Min J 96:153-5 Jl 26 '13

Canada

Mineral production of Canada in 1912. Iron Age 91:708 Mr 29 '13

Central America

Mining in Central America in 1912. Eng & Min J 95:139-40 Ja 11 '13

Colombia

Activity in Colombian placers. Eng & Min J 95:533-4 Mr 8 '13
 Activity in Colombian placers. F. F. Sharpless. Eng & Min J 95:815-6 Ap 19 '13
 Progress of mining in Colombia. S. Wright. Eng & Min J 95:429-30 F 22 '13

Colorado

Cripple Creek in the early days. G. L. Sheldon. Eng & Min J 95:220-1 Ja 25 '13
 London mine, Mosquito mining-district, Park county, Colo. C: J. Moore. diags Am Inst Min E Bul 75:415-27 Mr '13
 Metal mining in Colorado in 1912. G: E. Collins. Eng & Min J 95:118-9 Ja 11 '13
 Platoro district, Colorado. C. A. Allen. il Eng & Min J 96:575-7 S 27 '13
 Visitor's estimate of Platoro. S. E. Bennett. Eng & Min J 96:258 Ag 9 '13

Egypt

Egyptian minerals. Sci Am 109:70 Jl 26 '13

Idaho

Coeur d'Alene mining district. F. R. Ingalsbe. Eng & Min J 96:156-9 Jl 26 '13

India

India mica industry. A. F. Dixon. il Am Inst Min E Bul 77:859-77 My '13

Korea

Report of the Oriental consolidated mining co., in the Unsan district of Chosen. Eng & Min J 96:1025-6 N 29 '13
 Trip through northern Korea. II: W. Turner. il map Am Inst Min E Bul 76:561-9 Ap '13

Mexico

Fuerte district, Sinaloa. G. L. Sheldon. map Eng & Min J 95:750-1 Ap 12 '13
 La Mazata mine, Jalisco, Mexico. T: C. Myers. Eng & Min J 96:446 S 6 '13
 Mines of Mexico. H. A. Megraw. il Eng M 46:37-45 O '13
 Mining in Mexico in 1912. Eng & Min J 95:136-9 Ja 11 '13
 Patience and cheap labor in Mexican mining. W: H. Yeandle. Eng & Min J 96:1127-8 D 13 '13
 Relation of outcrops to ore at Cananea. M. J. Elsing. Eng & Min J 95:357-62 F 15 '13

Missouri

Conditions in the Joplin district. T. Chapman. Eng & Min J 96:393-4 Ag 30 '13
 Developments in the Joplin district, Mo. Eng & Min J 96:683-4 O 11 '13

Montana

Genesis of the Butte ores. Eng & Min J 96:587-9 S 27 '13
 Mining industry in Montana. F. L. Fisher. Eng & Min J 95:119-20 Ja 11 '13
 Origin of the Butte chalcocite. Eng & Min J 96:439-40 S 6 '13

Nevada

Kennedy mining district. P. Klopstock. Am Inst Min E Bul 78:1041-6 Je '13
 Mining in Nevada in 1912. Eng & Min J 95:127-30 Ja 11 '13
 Ore occurrence at Prince Consolidated mine at Pioche, Nevada. E: R. Zalinski. il Eng & Min J 95:809-12 Ap 19 '13
 Rochester, Nevada's newest boom camp. H. C. Cutler. il map Eng & Min J 95:355-6 F 15 '13

New Mexico

History of the Copper Queen mines. Eng & Min J 95:525-30 Mr 8 '13
 Minerals of the Tres Hermanas district. W. R. Wade. Eng & Min J 96:589-90 S 27 '13
 Mining in New Mexico in 1912. Eng & Min J 95:124-5 Ja 11 '13

New South Wales

New South Wales mineral production in 1912. Eng & Min J 95:744 Ap 12 '13

New York

Mining in northern New York. P. B. McDonauld. il map Eng & Min J 95:689-92 Ap 5 '13

North Carolina

Mining and treatment of feldspar and kaolin. A. S. Watts. il map U S Bur Mines Bul 53:1-160 '13

Ontario

Coniagas mine, Cobalt, Ontario. R. E. Hore. il map Eng & Min J 95:981-2 My 17 '13
 Ontario mineral output increased. T: W. Gibson. Eng & Min J 95:134-6 Ja 11 '13

Mines and mineral resources *Continued.***Oregon**

Mineral production of Oregon in 1912. Eng & Min J 96:772 O 25 '13

Peru

Economic and commercial situation in Peru. C. M. Pepper. *il* Iron Age 92:1097-1100 N 13 '13

Rhodesia

Mining in Rhodesia. H. F. Marriott. Eng & Min J 95:146-7 Ja 11 '13
Rhodesian mining notes. Eng & Min J 96:625-6 O 4 '13

Russia

Kyshtim corporation. Eng & Min J 96:358 Ag 23 '13
Russian mining in 1912. J. P. Hutchins. Eng & Min J 95:148-51 Ja 11 '13

South Africa

Conditions in prominent Rand mines. E. M. Weston. *il* Eng & Min J 96:49-50 Ji 12 '13
Government gold mines in South Africa. A. C. Key. Eng & Min J 95:15-6 Ja 4 '13
Rare minerals at Broken Hill, Rhodesia. G. D. Hubbard. Eng & Min J 95:1297-8 Je 28 '13

South America

Mining in South America in 1912. maps Eng & Min J 95:140-3 Ja 11 '13

South Dakota

Developments in the Black Hills. Eng & Min J 96:506-7 S 13 '13
Lithia deposits of the Black Hills. V. Ziegler. *il* Eng & Min J 96:1053-6 D 6 '13
South Dakota mines prospered. J. Simmons. Eng & Min J 95:125-6 Ja 11 '13

Sweden

Electro-metallurgy in Scandinavia. Eng & Min J 95:1293-5 Je 14 '13

Texas

Texas iron ore deposits. R. Linton. *il* map Eng & Min J 96:1153-6 D 20 '13
Topaz and stream tin in Mason county. H. C. Meyer. Eng & Min J 95:511-2 Mr 8 '13

Transvaal

Mining in the Transvaal in 1912. H. F. Marriott. Eng & Min J 95:144-6 Ja 11 '13

United States

Distribution of mining development in the United States. Iron Tr R 52:636 Mr 13 '13
Geographical distribution of mining development in the United States. E. W. Parker. Am Inst Min E Bul 75:443-51 Mr '13
United States Geological survey's table of ore production. Eng & Min J 96:753-4 O 18 '13

Utah

Mining in Utah in 1912. E. R. Zalinski. map Eng & Min J 95:121-3 Ja 11 '13

Minimum wage

Messages of the governors. Elec Ry J 41:74-5, 160-1 Ja 11, 25 '13

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Plans for a union of the Mining and metallurgical Soc. of Am. and the Am. Inst. of M. E. Eng & Min J 95:382-3 F 15 '13
Proposed union of the society and the Am. Inst. of M. E. Eng & Min J 96:466 S 6 '13

Mining camps

Cost of small frame buildings for a construction camp. Eng & Min J 96:550 S 20 '13
Sanitation of mining camps. C. H. Hair. Eng M. 45:601-2 Ji '13

Mining companies

Anthractive mine cave problem. Colliery 34:264-5 D '13

See also Mining industry and finance

Mining congresses

Allgemeine deutsche bergmannstag. O. H. Hahn. *il* Eng & Min J 96:779-82 O 25 '13
American mining Congress, sixteenth annual session. Eng & Min J 96:844-7 N 1 '13

Mining costs

Consolidated Mercur gold mines co. costs. Eng & Min J 95:223 Ja 4 '13

Cost of coal mining. E. W. Parker. Colliery 34:281-3 D '13

Cost of copper. H. Steele. Eng & Min J 96:251-8 Ag 9 '13

Cost of equipping a Mesabi underground mine. Eng & Min J 96:549 S 20 '13

Cost of mining as related to output. R. C. Jones. Colliery 34:158-61 O '13

Cost of shaft sinking in Minnesota iron mining. Eng & Min J 96:739-40 O 18 '13

Cost of sinking Brakpan mine shafts. Eng & Min J 96:980-1 N 22 '13

Effect of centralization on costs. Eng & Min J 96:217 Ag 2 '13

Hollinger gold mines, Porcupine, Ont. report for 1912. Eng & Min J 96:739 O 18 '13

Liberty Bell gold mining co. unit costs. Eng & Min J 96:1075-6 D 6 '13

Montana-Tonopah costs. Eng & Min J 95:711-2 Ap 5 '13

Rand mining and milling costs. E. M. Weston. Eng & Min J 95:329-30, 425-6 F 8, 22 '13

Steam-shovel work. Eng & Min J 96:1221-2 D 27 '13

Summary of the annual report of the West End consolidated mining co., Tonopah, Nev. Eng & Min J 96:1076 D 6 '13

Underground costs in Minnesota iron mining. Eng & Min J 96:408 Ag 30 '13

Unit costs North Star mines. Eng & Min J 95:23-4 Ja 4 '13

Zinc mining costs at Joplin. Eng & Min J 95:1101 My 31 '13

Mining engineering

Answers to examination questions asked at examination for fire boss held in Birmingham, Ala., 1913. Colliery 34:123-5 S '13

Answers to examination questions asked at examination for mine foreman and assistant foreman held at Pottsville, Pa., 1913. Colliery 33:651-4, 718-9 Je-Jl '13

Answers to examination questions for fire bosses and mine foremen, West Virginia, 1912. Colliery 33:500-3, 587-90 Ap-May '13

Butte back-filling stoping method. *il* Eng & Min J 96:594 S 27 '13

Choice of mining methods on the Mesabi range. Eng & Min J 96:592 S 27 '13

Chronology of mining in 1912. Eng & Min J 95:87-9 Ja 11 '13

Clear Creek and Gilpin county notes. S. L. Goodale. *il* Eng & Min J 96:195-7 Ag 2 '13

Demonstration of mining plans. H. G. Henderson. *il* Sci Am S 76:221 O 4 '13

Determining strike of magnetic deposit. M. G. F. Soehnle. Eng & Min J 95:517 Mr 8 '13

Diamond drill hole model. G. C. Bateman. *diag* Eng & Min J 95:471 Mr 1 '13

Drift mining Fairbanks, Alaska, frozen placers. *diag* Eng & Min J 96:975 N 22 '13

Explosives for mining operations. C. Hall and S. D. Howell. Eng M 45:437-40 Je '13

Factors affecting choice of mining method. E. M. Weston. Eng & Min J 96:523-5 S 20 '13

Fast work in driving a mine drift. E. T. Lednum. plan Eng N 69:601 Mr 27 '13

Filling mine stopes with mill tailings. Eng & Min J 95:36-7 Ja 4 '13

Handling telephone cables in the mine. G. Brown. *il* Eng & Min J 96:1216-8 D 27 '13

Installing a mining plant in Latin America. E. W. Perry. *il* Eng M 44:721-31 F '13

Mesabi station cutting. plans Eng & Min J 96:449-50 S 6 '13

Methods and costs, Mother Lode mine. B. C. E. Hibbert. *diag* Eng & Min J 95:599-602 Mr 22 '13

Mining and mining methods in the southeast Missouri disseminated-lead district. H. A. Guess. *il* map Am Inst Min E Bul 84:2749-68 D '13

Mining at the Wasp no. 2, in the Black Hills, South Dakota. J. Simmons. *il* Eng & Min J 95:1-4 Ja 4 '13

Mining magnetite by steam shovel in Sweden. A. S. Rice. *il* Iron Tr R 53:953-60 N 27 '13

Mining methods on the Mesabi range. Iron Tr R 53:450-3 S 11 '13

Mining engineering. *Continued.*

- Mining without timber in the Yukon. H. M. Payne. *il Eng & Min J* 95:325-6 F 8 '13
- Mother Lode region, Cal. L. H. Eddy. *il map Eng & Min J* 95:105-10 F 22 '13
- Openpit mining under difficulties. *Eng & Min J* 96:497 S 13 '13
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- Problem in mining, together with some data on tunnel-driving. F. M. Simonds and E. Z. Burns. *map Am Inst Min E Bul* 75:369-402 Mr '13; Discussion. 77:905-13 My '13
- Stopping methods at the North Star mine. L. O. Kellogg. *il Eng & Min J* 96:1011-5 N 29 '13
- Stopping methods, Mount Lyell. *Eng & Min J* 96:402-3 Ag 30 '13
- Summary of machine-drill data. *Eng & Min J* 96:1221 D 27 '13
- Underground blacksmith shops. *plan Eng & Min J* 96:592-3 S 27 '13
- Use of the microscope in mining engineering. F. W. Apgar. *il Am Inst Min E Bul* 78:1011-22 Je '13; Discussion. 83:2743-4 N '13
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Safety measures

- Electricity underground in relation to safety. H. H. Clark. *Eng & Min J* 96:354 Ag 23 '13
- Explosion-proof electric equipment for mining service. *il plan Eng N* 65:356-9 F 20 '13
- Fire protection of mines. J. Taylor. *Colliery* 34:28-9 Ag '13
- Handling explosives in mines. E. Higgins. *Eng M* 46:279-81 N '13
- Harvey safety shaft gate. *diag Eng & Min J* 95:230 Ja 25 '13
- Method of testing Draeger oxygen helmets at the Copper Queen mine. C. A. Mitke. *il Am Inst Min E Bul* 79:1169-72 Ji '13
- Moving pictures as an aid to mine accident prevention. *Colliery* 34:97-8 S '13
- New Zealand safety commission report. *Eng & Min J* 95:841-2 Ap 26 '13
- Preservation of boreholes. *Eng & Min J* 96:1070 D 6 '13
- Protection of pit ponies. *il Colliery* 34:169 O '13
- Rules for misfires in blasting. *Eng N* 76:1227 D 18 '13
- Safe handling of missed holes. *Eng & Min J* 96:1030-1 N 29 '13
- Safeguarding the use of electricity in mines. H. H. Clark. *Am Inst E E Pro* 32:848-56 Ap '13; Discussion. 32:2214-22 D '13
- Safety block for inclines. *il Eng & Min J* 95:518 Mr 8 '13
- Safety catch and bucket release. *diag Eng & Min J* 95:613 Mr 22 '13
- Safety first. J. Dunlop. *Colliery* 33:721-2 Ji '13
- Safety gates for shafts. *il Colliery* 34:162-3 O '13
- Safety in the Lake Superior iron ore mines. E. Higgins. *Iron Tr R* 53:390-1, 408-10 Ag 28-S 4 '13
- Safety rules—belts, pulleys and shafts. *Eng & Min J* 96:531 N 1 '13
- Safety rules—conveyances in the shaft. *Eng & Min J* 96:20-1 Ji 5 '13
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- Safety rules—mining. *Eng & Min J* 95:1292 Je 28 '13
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- Use of bucket crossheads. W. J. Roberts. *Eng & Min J* 96:893 N 8 '13

Mining engineers

- Promoting and engineering ethics. W. B. McKinlay. *Eng & Min J* 96:415-6 Ag 30 '13
- Mining engineers. American institute of. *See American institute of mining engineers*

Mining industry and finance

- Alaska Treadwell annual report, 1912. *Eng & Min J* 96:121-2 Ji 19 '13
- Am. mining congress; proceedings at 16th annual session, Philadelphia, Oct. 20 to 25, 1913. *Colliery* 34:290-9 D '13
- Amortizing and interest charges for coal mines. L. C. Jones. *Colliery* 33:415-8 Mr '13
- Chronology of mining in 1912. *Eng & Min J* 95:87-9 Ja 11 '13
- Company reports. *Eng & Min J* 96:357-8, 597-8 Ag 23, S 27 '13
- Data of the world's principal mines. S. F. Shaw. *Eng & Min J* 95:93-5 Ja 11 '13
- December mining dividends. *Eng & Min J* 95:36 Ja 4 '13
- Dividends paid by mining companies in 1912. *Eng & Min J* 95:90-2 Ja 11 '13
- Dome mines co., South Porcupine, Ont.; second annual report. *Eng & Min J* 96:217-8 Ag 2 '13
- Government gold mines in South Africa. A. C. Koy. *Eng & Min J* 95:45-6 Ja 4 '13
- Insurance on mine property. W. H. Charlton. *Colliery* 33:606 Ji '13
- Metal mines production in California, in 1912. *Eng & Min J* 96:890 N 8 '13
- Method of financing mining property. S. M. Soupcoff. *Eng & Min J* 96:827-8 N 1 '13
- Mining companies; list of names, shares and dividends. *Eng & Min J* 95:1116 My 31 '13
- Ore shipments from Lake Superior ranges. *Iron Tr R* 52:586-9 Mr 6 '13
- Progress of mining in Colombia. S. Wright. *Eng & Min J* 95:429-30 F 22 '13
- Rand mining policies. *Eng & Min J* 96:399-400 Ag 30 '13
- Report of Tonopah-Belmont development co. for year ended Feb. 28, 1913. *Eng & Min J* 95:1009 My 17 '13
- Rhodesian mining notes. *Eng & Min J* 96:625-6 O 4 '13
- State mines profitable. *Iron Tr R* 52:123 F 13 '13
- Western metallurgical field. *Met & Chem Eng* 11:68-9 F '13
- What is the matter with the mining industry? *Eng & Min J* 96:849 N 1 '13
- Woman asks court for injunction against Corrigan, McKinney & Co., of Cleveland. *Iron Tr R* 52:999 My 1 '13

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- Mining institutes. *See* Lake Superior mining institute, Panther valley mining institute

Mining laws

- Abstract of current decisions on mines and mining. October, 1912, to March, 1913. J. W. Thompson. *I S Bar Mines Bul* 61:1-80 '13
- Amending mining laws. C. J. Fry. *Eng & Min J* 95:482-4 Mr 1 '13
- Answers to examination questions asked at examination for mine foreman and assistant foreman held at Pottsville, Pa., 1913. *Colliery* 33:552-3 Je '13

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- Conservation and commercialism. E. S. Peabody. *Colliery* 33:694-6 *JI* '13
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 Our absurd mining law. Eng & Min *J* 15: 865-6 *Ap* 26 '13
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 Public land controversy. Eng & Min *J* 95: 33-1 *Ja* 1 '13
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- Breast turret coal cutters. *II* *Colliery* 34: 259-60 *N* '13
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 Machine mining in anthracite mines. H. Archbald. *II* *plan Colliery* 33:471-6 *Ap* '13
 Mechanics of mining. R. T. Stroh. *Colliery* 33:448-9, 487-9, 566-8, 632-5, 712-5; 34: 43-5, 114-6, 184-6, 246-7, 307-8 *Mr-D* '13
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Mining schools and education

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Technical education. *Met & Chem Eng* 11: 64 *F* '13

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Sanitation in mines and mine towns. Lake Superior region. W. H. Moulton. *Iron Age* 92:475-6 *Ag* 28 '13; Same. Eng & Min *J* 96:391-2 *Ag* 20 '13

Sanitation of mining towns. J. H. White. Eng & Min *J* 96:73-1 *JI* 12 '13

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Annual report for year ending June 30, 1913. Ry *Age* 55:818-50 *O* 31 '13

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Proposed water-supply and sewage disposal legislation in Minnesota. Eng *N* 69:633-4 *Mr* 27 '13

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Minnesota convention in St. Paul, March, 1913. *Elec W* 61:610-2 *Mr* 22 '13

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Decision of the Supreme court as to railway land valuations. Ry *Age* 55:189-90 *JI* 18 '13

Government valuation of railroads. *Sci Am* 109:46 *JI* 19 '13

Minnesota rate case decision. Ry & Eng *R* 53:561-3 *Je* 14 '13

Supreme court decides Minnesota rate case. Ry *Age* 54:1394-5, 1318-9 *Je* 13 '13

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Production and properties of metallic films. *Sci Am S* 75:151 *Mr* 8 '13

Silvered mirrors and their preservation. L. Bell. *Elec W* 61:1081-5 *My* 24 '13

Silvering of mirrors. E. Blassett, jr. *Metal Ind n s* 11:323-4 *D* '13

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Alternative propositions for control of the Mississippi river. W. Parker. *Sci Am* 108: 267 *Mr* 22 '13

Control of the Mississippi. H. R. Flint. *Sci Am* 108:31 *Ja* 11 '13

Control of the Mississippi. R. S. Spears. *Sci Am* 108:287 *Mr* 29 '13

Control of the Mississippi floods. J. L. Slusher. *Sci Am S* 75:395-400 *Je* 21 '13

Control of the Mississippi floods. C. D. Townsend. map *II* *Sci Am S* 75:279-83 *My* 3 '13

Control of the Mississippi river. *Sci Am* 108: 262 *Mr* 22 '13

Control reservoirs and the Dayton flood. *Sci Am* 108:350 *Ap* 19 '13

Controlling the Mississippi river: why the levee system is superior to all other proposed methods. C. M. Townsend. *Sci Am S* 75:6-7 *Ja* 1 '13

Controlling the Mississippi with small dams. F. A. Day. *Sci Am* 108:579 *Je* 28 '13

Flood-control problem summarized. C. M. Townsend. Eng *N* 70:1121 *D* 4 '13

Hydraulic dredging on the upper Mississippi river. R. Monroe. *II* *Eng N* 70:143-5 *JI* 24 '13

Intractable Missouri-Mississippi system. *Sci Am* 108:316 *My* 3 '13

Measures for flood prevention and river control. Eng *Rec* 67:505-6 *My* 3 '13

Mississippi problem. J. LaForest. *Sci Am* 108: 355 *Ap* 19 '13

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- Mississippi problem. T. D. Long. *Sci Am* 108: 559 Je 21 '13
- Mississippi problem. N. J. Noble. *Sci Am* 108: 335 Ap 12 '13
- Power from the Mississippi river at Keokuk, Ia. il plans map *Power* 38:184-90 Ag 5 '13
- Problem of the Mississippi river. *Sci Am* 108: 150 F 15 '13
- Protest against amateur flood-controllers. W. C. Taylor. *Sci Am* 108:397 My 3 '13
- Real problem of the Mississippi. R. S. Spears. *Sci Am* 108:155 F 15 '13
- Reservoirs at the headwaters of the Mississippi river. *Eng Rec* 67:436 Ap 19 '13
- Shall we retard, divert, or confine our flood waters? *Sci Am* 108:466 My 24 '13

Missouri

- Mining and mining methods in the southeast Missouri disseminated-lead district. H. A. Guess. il map *Am Inst Min E Bul* 84:2749-68 D '13

Missouri association of master plumbers

- 30th annual convention. Joplin. Feb. 1913. *Dom Eng* 62:289-4 Mr 8 '13

Missouri electric association

- Seventh annual convention, Kansas City, 1913. *Elec W* 61:869-70 Ap 26 '13

Missouri, Kansas & Texas railway

- Favorable showing of Missouri, Kansas & Texas. *Ry Age* 55:1057-8 D 5 '13
- Report for year ended June 30, 1913. *Ry Age* 55:1104-6 D 5 '13
- Studies in operation. map *Ry Age* 54:1167-72 My 30 '13

Missouri Pacific-Iron Mountain system

- Pres. Bush's comments on results of fiscal year ending June 30, 1913. *Ry & Eng R* 53: 933-4 O 4 '13

Missouri Pacific railroad

- Report of affairs for year ended June 30, 1913. *Ry Age* 55:737-8 O 17 '13
- Revenues and expenses. map *Ry Age* 55: 689-91 O 17 '13

Missouri river

- Aids to navigation on the Missouri river. F. C. Perkins. il *Sci Am S* 75:100-1 F 15 '13
- Intractable Missouri-Mississippi system. *Sci Am* 108:396 My 3 '13
- Suggestions on reservoir control of the Missouri. J. C. Hopper. *Sci Am* 108:559 Je 21 '13
- Suggestions on utilizing the power of the Missouri. W. Johnson. *Sci Am* 109:111 Ag 9 '13

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- Molding machine for large work, designed by U. S. molding machine co., Cleveland. il *Iron Age* 92:120 Jl 17 '13
- Mumford electric jolt-ramming molding machine. il *diag Foundry* 41:457 O '13
- New moulding machine for flat work. il *Metal Ind n s* 11:137-8 Mr '13
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- Piston molding machines of International molding machine co., Chicago. il *Foundry* 41:252-3 Je '13
- To make molding machines most effective. H. W. Lengfelder. *Iron Age* 91:255 Ja 23 '13

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- Efficient foundry sand-handling plant installed in the Hart-Parr co.'s foundry. il *Foundry* 41:21-6 Ja '13
- Physical properties of molding sands. A. B. Searle. *Eng M* 44:103-6 O '12
- Utilization of old foundry sand. H. C. Estep. *Foundry* 41:321-2 D '13

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- Oil films one molecule thick: a direct measurement of molecular dimensions. H. Deveaux. il *Sci Am S* 75:312-3 My 17 '13
- Size of the finest organic structures. W. Stempell. il *Sci Am S* 75:260 Ap 26 '13

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- Molybdenum ore. *Eng & Min J* 95:79 Ja 11 '13
- Tungsten and molybdenum—their thermal emf. E. F. Northrup. *Met & Chem Eng* 11: 45 Ja '13

Moments of inertia

- Graphic determination of moments of inertia and centrifugal moments. A. Denizot. *Am Soc M E J* 35:1292-3 Ag '13
- Graphical method of determining moments of inertia. R. Kraus. *Mach* 19:697-8 My '13
- Nomographic method for finding center of gravity and moment of inertia. M. J. Eichorn. *diag Ry Age* 55:381-3 Ag 29 '13

Money

- Currency reform and today's business. H. A. Wheeler. *Dom Eng* 65:407 D 27 '13
- Proposed currency legislation. F. A. Vanderbilt. *Iron Age* 92:1216-8 N 27 '13
- See also* Banking law; Foreign exchange; Gold (as money)

Money trust investigation

- Report of the Pujo committee. *Ry & Eng R* 53:201-2 Mr 8 '13

Monoplanes. See Aeroplanes

Monopolies

Benefits of our patent system. J. B. Fay. *Sci Am S 75:230-1 Ap 12 '13*
 Tariff hearings on incandescent lamps. *Elec W 61:285-6 F 8 '13*

See also Government ownership; Municipal ownership; Trusts

Montana**Industries and resources**

Coal fields of Montana. E. Stebinger. Bibliog map. *Am Inst Min E Bul 81:2329-59 S '13*
 Hydro-electric development in Montana. M. Hehgen. *il Am Inst Min E Bul 80:1907-33 Ag '13*
 Ore deposits at Butte. R. H. Sales. diags. *Am Inst Min E Bul 80:1523-1626 Ag '13*
 Southern Cross mine. Georgetown. P. Billingsley. map. *Am Inst Min E Bul 81:2289-97 S '13*

Montana-Tonopah mines co.

Report for year ended Aug. 31, 1912. *Eng & Min J 55:859 Ap 26 '13*

Montclair, N. J.

City that appreciates a railroad. *Ry Age 55:54-5 Jl 11 '13*

Terminal improvement on the Lackawanna. *il plan Eng Rec 68:495-7 N 1 '13*

Montessori method

What is the Montessori method? S. M. Gruenberg. *il Sci Am S 76:412-4 D 27 '13*

Montreal, Canada**Bridges**

Lachine bridge erection across the St. Lawrence river. *il Eng Rec 67:380-1 Ap 5 '13*

Railroads

Canadian Northern Montreal terminal. *il map diag Ry Age 55:651-4 O 10 '13*

Rapid transit

Latest features of Montreal cars. *il diags Elec Ry J 42:1132-4 N 29 '13*

Montreal tramways mutual benefit association

Economic aspect of benefit association work. *Elec Ry J 42:1336-2 N 27 '13*

Monuments

Maine monument. H. V. Magonigle. *il Arch & Bldg 45:302-5 Jl '13*

Stone monuments: their relation to history and geography. J. W. Fewkes. *il Sci Am S 76:248-51, 264-5 O 18-25 '13*

See also Tombs

Moon lore

Moon-farming. C. F. Talman. *Sci Am 108:471 My 24 '13*

Moore, Willis Luther, 1856-

Printer-scientist-farmer candidate for the portfolio of agriculture. C. A. Hartman. *por Inland Ptr 50:537 Ja '13*

Moors and heaths

Moor-burning in Germany. *Sci Am 108:429 My 10 '13*

Moose Jaw, Canada

Moose Jaw water-supply system. *il plan Eng Rec 67:694-6 Je 21 '13*

Morgan, John Pierpont, 1837-1913

Judge Gary lauds J. P. Morgan. *Iron Tr R 52:777 Ap 3 '13*

Remarkable career of a constructive genius. *por Iron Tr R 52:817-20 Ap 3 '13*

Morris, Charles A. F., 1827-1906

Reminiscences of a pioneer engineer of the Great Northern Ry. *Eng N 69:674-5 Ap 3 '13*

Mortality

Low record death rate for New York city. *Eng N 69:175 Ja 23 '13*

Upward trend of mortality in middle life and old age. E. E. Rittenhouse. *Sci Am S 75:194-5 Mr 29 '13*

Mortar

Oil-mixed mortars and concretes; an absolute waterproofing material. L. W. Page. *Eng M 44:109-13 O '12*

See also Cement; Concrete; Masonry

Mortuary chapels. See Chapels**Mosquitoes**

Device for detecting flight of mosquitoes. L. E. Haskell. *il Sci Am 109:102 Ag 2 '13*

Mosquito extermination and its problems. E. Winship. *il Eng Rec 67:490-2 My 3 '13*

Same cond. *Eng M 45:577-9 Jl '13*

Motion

See also Vibration

Motion study

Automatic truck decreases the cost of shop transportation. R. T. Kent. *il Ind Eng 13:99-102 Mr '13*

Micro-motion study. *Iron Tr R 52:419 F 13 '13*

Micro-motion study; a new development in efficiency engineering. *il Sci Am 108:84 Ja 25 '13*

Micro-motion study by means of chronometer and moving picture machine. *il Ind Eng 13:1-4 Ja '13*

Micro-motion study in industry. R. T. Kent. *il Iron Age 91:34-7 Ja 2 '13*

Motion study. *Eng M 45:412-4 Je '13*

Motion study in the box shop. R. T. Kent. *plans Ind Eng 13:325-9 Ag '13*

Tripling the output of a milling machine by motion study. *il Ind Eng 13:169 Ap '13*

Work of filing. *Sci Am S 75:99 F 15 '13*

Motor barges

Inland navigation barges with producer-gas engines. *il plans Eng N 70:1103-12 D 4 '13*

Motor barges in the Alabama coal trade. *il plan Ry & Eng R 53:990-1 O 25 '13*

Producer-gas engines in a new field. *Colliery 31:176 O '13*

Shallow-draft producer gas motor barges. *il diags Int Marine Eng 18:467-9 N '13*

Motor boat racing

Timing of motor-boat races. W. H. Fauber. *Sci Am 108:223 Mr 8 '13*

Motor boats

Development of producer gas motor boats. *il Int Marine Eng 18:484-6 N '13*

Large commercial motor boat. Radium. *il Int Marine Eng 18:121 Mr '13*

Large motor-driven ferry. Bridgit. *il Int Marine Eng 18:477 N '13*

Motor tug Natilie built to do the work of two steel steam tugs. *il Int Marine Eng 18:30 Ja '13*

New York motor boat show. *Sci Am 108:211 Mr 1 '13*

Passenger boat for Cuban waters to operate on alcohol fuel. *diag Int Marine Eng 18:486 N '13*

Power life-boats—the Lundin decked type. *diags Int Marine Eng 18:248-51 Je '13*

Work boat for Mexican waters. *il Int Marine Eng 18:486-7 N '13*

See also Hydroplane boats; Motor barges;

Motor ice boats; Motor ships

Motor buses. See Motor omnibuses**Motor carriages. See Automobiles****Motor cars (railroad)**

Benzol-electric train for the khedive. F. C. Coleman. *il Sci Am 109:376 N 15 '13*

British gasoline-electric motor car. *il diags Ry & Eng R 53:562-3 My 31 '13*

Characteristics and operating features of the gas-electric car. L. C. Josephs, jr. *Ry Age 55:828-30 O 31 '13*

Gas-electric motor car. Midland Valley railroad. *il plan Ry & Eng R 53:960-1 O 11 '13*

Gas-electric motor car on the Midland Valley railroad. *il Elec Ry J 42:429 S 13 '13*

Gas-electric motor cars. *Ry & Eng R 53:510-4 Je 7 '13*

Gas-electric motor cars for the Chicago, Milwaukee & Puget Sound railway. *il Elec Ry J 41:295 F 15 '13*

Gas-electric motor cars on Chicago, Milwaukee & Puget Sound. *il Ry Age 54:389 F 28 '13*

Gas-electric motor cars on the Chicago, Milwaukee & Puget Sound Ry. *il Ry & Eng R 53:160 F 22 '13*

Gas-electric train for the Khedive of Egypt. *il Elec Ry J 42:656 O 4 '13*

Motor cars (railroad) - Continued.

- Gasoline cars for the Holton interurban, Redlands, Cal. *il* Am Eng 87:270-1 My '13
- Gasoline-electric and storage-battery cars. Elec W 61:1128-9 My 31 '13
- Gasoline-electric train unit for Egyptian railways. *il* plan Ry & Eng R 53:1018-9 N 1 '13
- Gasoline motor car for interurban service, Redlands, Cal. *il* Ry Age 54:1000-1 My 2 '13
- Hydraulic transmission in railway cars: Hele-Shaw system combined with internal combustion engines. *il* Eng M 46:119-21 O '13
- Internal combustion motor for railways. F. M. Lanchester. *il* plans Sci Am S 76:405-7 D 27 '13
- McKeen narrow gage motor cars for the Queensland railways, Australia. *il* plan Ry & Eng R 53:100 F 1 '13
- Motor car troubles, their symptoms, causes and remedies. *Ry Age* 55:298-9 Ag 15 '13
- Motor cars for bridge gangs. *Ry Age* 55:786-7 O 24 '13
- Motor cars for maintenance of way forces: study of service of over 3500 cars on sixty roads. *Ry Age* 55:101-3 J1 18 '13
- Motor-operated section-cars on the Toledo & Ohio Central Ry. *il* Eng N 69:1064-5 My 22 '13
- Narrow-gage gasoline cars for Australia. *il* Elec Ry J 41:158-9 Ja 25 '13
- Narrow-gage self-propelled passenger coach. S. Petman. *il* Sci Am 108:338 Ap 12 '13
- Operating costs of self-propelled cars. Elec Ry J 41:334 My 24 '13
- Provision for electrical equipment on steel motor cars. F. W. Butt. *Am Soc M E J* 35:838-40 My '13; Same. *Ry & Eng R* 53:420 My 3 '13
- Railway motor cars: mechanical and electric drive. S. T. Dodd. *Eng M* 46:268-71 N '13
- Self-propelled cars. Elec Ry J 42:622-33, 890-1 O 4, 18 '13
- Self-propelled cars. S. T. Dodd and R. H. Arnold. *Ry Age* (Mech ed) 57:324-8 Je '13; Same cond. *Ry Age* 54:1180-2 My 30 '13
- Self propelled railway passenger cars. *Ry & Eng R* 53:507 My 31 '13
- 640-hp work-car locomotive for the Boston elevated railway. *il* Elec Ry J 41:295 F 15 '13
- Two-unit gas-electric train on the Pittsburgh & Lake Erie R. R. *il* Elec Ry J 41:387 Mr 1 '13

Storage battery cars

- Construction of American and Prussian accumulator cars. A. Büttner. *Elec Ry J* 41:335-6 F 22 '13
- Construction of American and Prussian accumulator cars. L. Scott. *Elec Ry J* 41:383 Mr 1 '13
- Control circuits of storage battery cars. *Elec Ry J* 41:748 Ap 26 '13
- Gas-electric and storage battery cars. *Elec Ry J* 41:965 My 31 '13
- Long run of new Beach-Edison storage battery car. *Elec Ry J* 41:429 Mr 8 '13
- Narrow-gage combination car for the Pacific coast railway. *Elec Ry J* 41:899 My 17 '13
- Self-propelled cars. *il* Elec Ry J 42:624-33 O 4 '13
- Service and inaugural performances of Beach-Edison storage battery cars. *Elec Ry J* 41:767 Ap 26 '13
- Storage battery car in branch line service. J. H. Tracy. *Ry & Eng R* 53:529 Je 7 '13
- Storage battery car progress. *il* Elec Ry J 41:338 My 24 '13

Motor cars (street railroad)

- Gas-electric cars for London county council tramways. *il* Elec Ry J 42:36 J1 5 '13
- Gasoline-electric equipment on London tramways. *il* Ry & Eng R 53:963 O 11 '13
- Gasoline repair cars on Illinois traction system. *il* Elec Ry J 41:900 My 17 '13
- Gasoline surface cars in India. *il* Elec Ry J 41:427 Mr 8 '13
- Single-deck and double-deck prepayment cars for Vienna. *il* plans Elec Ry J 42:182-4 Ag 2 '13

Steam turbine street cars for Long Island. *Sci Am* 109:183 S 6 '13

Motor carts

New light delivery car. *il* Automobile 28:1079 My 22 '13

Motor chairs

Motor chair built by a school boy. *il* Sci Am 109:231 S 20 '13

Motor cycle trucks

Delivery truck of the Harley-Davidson motor co. *il* Automobile 28:1323 Je 26 '13

Motorcycle truck for light deliveries. *il* Sci Am 109:76 J1 26 '13

Motor cycles

Electric starters for motorcycles. *il* Elec W 62:1231 D 13 '13

Electric versus gas lighting for motorcycles. L. C. Porter. *il* Sci Am S 76:132-3 Ag 30 '13

Genealogy of the motorcycle from the steam velocipede, 1868, to the standard machine of 1913. J. J. O'Connor. *Sci Am* 109:12-13 J1 5 '13

See also Motor cycle trucks

Motor fire apparatus. See Fire apparatus, Motor

Motor fire engines. See Fire engines, Motor

Motor-generators

Motor generators and frequency in alternating current railway signaling. *Ry & Eng R* 53:671-3 J1 12 '13

Motor-generators and rectifiers. *il* Automobile 28:34-6 Ja 2 '13

Motor ice boats

Motoring on ice. *il* Sci Am 108:172 F 22 '13

Motor omnibuses

Arrival of the bus-versus-tram controversy. *Elec Ry J* 41:611-5 Ap 5 '13

Bus competition in London. *Elec Ry J* 41:920 My 24 '13

Bus operation in London and Paris. J. A. McCollum. *Elec Ry J* 42:1093-6 N 22 '13

De Dion buses to relieve congested traffic in Paris. *il* Automobile 29:182-3 J1 21 '13

English tramway and motor bus. *Elec W* 62:556-7 N 8 '13

Future of the motor omnibus. *Eng N* 70:1039-41 N 20 '13

Huntington, Indiana adopts automobile buses. J. M. Hobart. *il* Automobile 29:284-5 Ag 14 '13

London's transportation and lighting. L. Bell. *Elec W* 62:366-7 Ag 23 '13

Mechanical and electric traction on the Paris streets. J. Boyer. *il* Eng M 44:56-78 O '12

Motor omnibus accidents in London. Eng. H. R. Wilson. *Eng N* 70:550-2 S 18 '13

Motor-omnibus operation: reports of H. P. Nichols and J. A. McCollum. *Eng N* 70:1050-2, 1087-90 N 20-27 '13

Six wheeled omnibus. S. Petman. *il* Sci Am 108:264 Mr 22 '13

Superiority of the steam omnibus. T. Clarkson. *Automobile* 28:1269-70 Je 19 '13

34-passenger single-deck motor omnibus. *il* Eng N 70:1 J1 3 '13

Three years' record in motor-omnibus development in London. *Eng N* 70:1180-1 D 11 '13

Weight and cost of London motor omnibuses. *Eng N* 70:1321-2 D 25 '13

Where the motor bus beats the trolley. J. R. Eustis. *Sci Am* 108:182 F 22 '13

Motor plows

Agricultural motoring and its importance for enlarging the automobile market. *il* Automobile 29:1066-9 D 4 '13

Gasoline motor plow. F. C. Perkins. *il* Sci Am 109:439 D 6 '13

Latest motor plows. K. Praetorius. *diag Am Soc M E J* 35:884-5 My '13

Motor rollers. See Road rollers

Motor ships

British motor coaster Isleford. *il* plan Int Marine Eng 18:202-3 My '13

California, an 11,000-ton motor ship. J. R. Wilson. *il* Int Marine Eng 18:523 D 13

Cavels-Diesel engine applied to motor ship Evestone. *il* Eng M 41:601-4 Ja '13

Motor ships—Continued.

- Diesel-electric-driven ship Tynemount. J. R. Wilson. *il Power* 38:641-3 N 4 '13
- Eavestone's first long voyage. *il plan Int Marine Eng* 18:78-80 F '13
- Electric propulsion for ships. E. Berg. *plan Eng M* 44:269-72 N '12
- Fuel consumption in motor ships. *Sci Am* 8 76:303-4 N 8 '13
- Gas engine yacht. R. MacIntyre. *il Sci Am* 109:165-6 Ag 30 '13
- German-built motor ship Hermann Krabb. A. Gradenwitz. *il plan Int Marine Eng* 18:238-40 Je '13
- German Diesel engined tank ship Hagen. *il plans Int Marine Eng* 18:297-11 My '13
- Large-motor vessels. *Int Marine Eng* 18:279 JI '13
- Liquid fuel and ship propulsion. *Eng Rec* 68: 423 O 18 '13
- Motor-driven freight ship, Bromberg. *Int Marine Eng* 18:146 Ap '13
- Motor gunboats for Colombia. *il Int Marine Eng* 18:469 N '13
- Motor lightship Bürgermeister O'Swald. J. R. Wilson. *il plan Int Marine Eng* 18:155-7 Ap '13
- Motor tank ship Wotan. *il Int Marine Eng* 18:496 N '13
- Motor towboat "Breakwater." *diags Int Marine Eng* 18:534-5 D '13
- Motor vessels for the German navy. J. R. Wilson. *il Int Marine Eng* 18:332 Ag '13
- Motor yacht Idealia, equipped with Diesel engines. *il Int Marine Eng* 18:163-5 Ap '13
- Motorship Wotan. *il Power* 38:504-5 O 28 '13
- Oil driven vessel White May, on Thames river. *Int Marine Eng* 18:160 Ap '13
- Oil-engined coaster. G. Thow. *Int Marine Eng* 18:6 Ja '13
- Performance on service of the motor-ship Suecia. I. Knudsen. *Int Marine Eng* 18:346-7 Ag '13
- Single screw motor ship of 1,500 b. h. p. J. R. Wilson. *il plan Int Marine Eng* 18:102-4 Mr '13
- Triple-screw motor ship Alkmaar. J. R. Wilson. *Int Marine Eng* 18:32 Ja '13
- Twin-screw motor-ship Hagen—a new Krupp two-stroke type Diesel-engine tank vessel of 2400 b. hp. J. R. Wilson. *il Eng N* 69:666-7 My 1 '13
- Twin-screw motor ship Monte Penedo. *il Eng M* 44:257-61 N '12
- World's two largest motor-ships; Siam and Annam. J. R. Wilson. *il Int Marine Eng* 18:291-2 JI '13
- See also Marine engines; Motor boats
- Motor sleds**
- Scott's motor sledges. *Sci Am* 108:227 Mr 8 '13
- Motor spirit**
- Cheap fuel discovered in London. *Automobile* 29:487 S 11 '13
- London assured of 28-cent motor fuel. *Automobile* 29:531 S 18 '13
- Making motor spirit. P. C. Crenshaw. *Automobile* 28:396 My 8 '13
- Motor spirit increases horsepower. *Automobile* 28:775 Ap 3 '13
- Motor spirit on test. *Automobile* 28:840 Ap 17 '13
- Motor spirit to solve fuel problem for the passenger car. *Automobile* 28:535-7 F 27 '13
- New British automobile fuel not up to par. R. W. A. Brewer. *Automobile* 29:861 N 6 '13
- New Standard oil fuel. *Automobile* 28:500 F 20 '13
- Motor sweepers.** See Motor trucks, Municipal
- Motor truck driving**
- Educating the freight automobile driver. *Automobile* 28:204-5 Ja 16 '13
- Motor truck industry**
- Directory of motor truck manufacturers. *Automobile* 28:188-9 Ja 16 '13
- Eleven French makers win war department subsidy. W. F. Bradley. *il Automobile* 29: 451-5 S 11 '13
- Foreign markets for commercial vehicles. *Automobile* 29:162-3 JI 24 '13
- Motor truck maker's burden.** *Automobile* 28: 386-7 Ja 30 '13
- Truck industry grows 200 per cent. *Automobile* 28:800-1 Ap 19 '13
- Two hundred per cent increase in the motor truck industry. *Sci Am* 108:384 Ap 26 '13
- See also Automobile industry
- Motor truck routes**
- Use of truck routes. *Automobile* 29:194-5 JI 31 '13
- Motor trucks**
- Advantages of tractor transportation. *il Sci Am* 109:168 Ag 30 '13
- Auto-truck for coal delivery. F. C. Perkins. *il Sci Am* 8 75:24-5 Ja 11 '13
- Availability of motor trucks for mines. *Eng & Min J* 96:731-4 O 18 '13
- Best total gear ratio for trucks as explained by Renaud. *diags Automobile* 29:560-1 S 25 '13
- Business getters for small concerns. C. H. Spencer. *Sci Am* 108:76 Ja 18 '13
- Chapel on a motor truck. *il Sci Am* 108:352 Ap 19 '13
- Characteristics and shortcomings of trucks pointed in review after the annual military trials. *Automobile* 29:381-2 Ag 28 '13
- Comparative data on performance of motor trucks with regard to size of motor and gear ratios. C. C. Myers. *Automobile* 28:346-7 Ja 30 '13
- Comparing the incomparable. *Sci Am* 108:62 Ja 18 '13
- Comparing the incomparable. H. F. Thomson. *Sci Am* 108:183 F 22 '13
- Conditions of motor truck economy. *il Munic Eng* 44:413-4 My '13
- Construction details from tested trucks. *Automobile* 29:478-9 S 11 '13
- Delivery in the Christmas storm; contrast pictures the motor and the horse. *il Automobile* 28:190-3 Ja 16 '13
- Economy of motor trucks in paving work. *il Eng Rec* 68:205 Ag 23 '13
- Effect of the self-starter on motor-truck development. *Eng Rec* 67:510 My 10 '13
- Efficiency of motor trucks with trailers. M. Cilley. *il Eng Rec* 67:120-4 F 1 '13
- Electric versus gasoline motor vehicles. S. G. Thompson. *Eng M* 46:112-4 O '13
- Emergency gasoline motor trucks for the Detroit united railway. *il Elec Ry J* 42:72 JI 12 '13
- End dump bodies for commercial vehicles. R. Babcock. *il Sci Am* 108:372 Ap 26 '13
- Exhibition of British society of motor manufacturers and trades. *il diags Automobile* 29: 225-7, 269-75 Ag 7-14 '13
- Foreign tendency of motor truck design. L. C. Freeman. *Automobile* 28:347-9 Ja 30 '13
- Four-wheel-drive construction and the field for it. *Automobile* 29:62-3 JI 19 '13
- Gas-electric four-wheel drive on the Balachowsky & Caire system. *diag Automobile* 29: 117-8 JI 17 '13
- Gasoline truck development. *diags Automobile* 28:183-7 Ja 16 '13
- Gasoline truck; trucks and delivery vehicles classified according to load capacity; price and body sizes. *Automobile* 28:199-203 Ja 16 '13
- Gasoline vs. electric trucks. *Automobile* 29: 27 JI 3 '13
- Hexter gas-electric truck. *il Automobile* 29: 663 O 9 '13
- Hints to prospective purchasers of trucks. *il Dom Eng* 62:149-50 My 19 '13
- Horse living versus horse power. *Sci Am* 108: 574 Je 28 '13
- Improving desert roads for motor-truck haulage between Blythe, Cal., and Blythe Junction. *il Eng N* 69:1126-7 My 29 '13
- Increased efficiency and the motor truck. *il Dom Eng* 62:230-1 F 22 '13
- Interchangeable parts versus standardization. C. Balough. *Automobile* 28:1276 Je 19 '13
- Is the motor wagon an asset? *Dom Eng* 62: 131-2 F 1 '13
- Jeffery truck with 4-wheel drive and steer. *diags Automobile* 29:550-2 S 25 '13

Motor trucks—Continued.

- Limiting the size of motor trucks. Eng N 69:124 Ja 16 '13
 Log of a horse drawn truck. il Sci Am 108: 586 Je 28 '13
 Logging with a motor truck. il Eng N 69: 1065 My 22 '13
 Logging with a motor truck. il Sci Am 108: 586 Je 28 '13
 Low-grade fuel for motor trucks. N. B. Pope. Automobile 28:291-5 Ja 23 '13; Same cond. Iron Age 91:130 F 12 '13
 Mechanical loader for motor trucks. Sci Am 109:76 Jl 26 '13
 Motor capacity—load ratios. Automobile 28: 194-8 Ja 16 '13
 Motor transportation as aid to industrial economy. R. W. Hutchinson. il Eng M 44: 526-46, 732-50, 851-66 Ja-Mr '13
 Motor truck and the freight terminal. R. L. Niles. Sci Am 109:248 S 27 '13
 Motor truck as an economical tool. R. W. Hutchinson, jr. Iron Age 91:530-1 F 27 '13
 Motor truck chassis on the 1913 market: load capacity and complete specifications. Automobile 28:206-17 Ja 16 '13
 Motor truck efficiency. il Munic Eng 44:408-11 My '13
 Motor truck extension of railroads. Sci Am 109:238 S 27 '13
 Motor truck in contracting and construction work. R. W. Hutchinson, jr. il Eng M 45: 733-816; 46:777-94, 237-48 S-N '13
 Motor truck in manufacturing. H. W. Slauson. il Mach 19:23-7 S '12
 Motor truck in the gas business. Munic Eng 44:443-4 My '13
 Motor truck queries. Sci Am 109:249 S 27 '13
 Motor truck researches at the Massachusetts institute of technology. J. Ritchie, jr. Sci Am 108:294 Mr 29 '13
 Motor trucks for desert haulage. il Eng Rec 67:sup 49-50 My 3 '13
 Motor trucks 3 per cent. of traffic in Massachusetts in August, 1912. J. T. Sullivan. Automobile 28:498-9 F 20 '13
 Motorized hauling service. W. Walker. Munic Eng 45:128-9 Ag '13
 Motorizing Mars in France. il Automobile 29: 639-43 O 9 '13
 New hydraulic dumping body. il Automobile 29:216-7 Jl 31 '13
 Overloading ruins solid truck tires. Automobile 28:1316-7 Je 26 '13
 Pedrail motor truck and trailer. il Sci Am 109:323 O 25 '13
 Power winches for hauling trailers. Automobile 29:559 S 25 '13
 Revised requirements for subsidized German trucks. diags Automobile 28:1204-5 Je 12 '13
 70 trucks compete in French army trials. il Automobile 29:152-5 Jl 21 '13
 Special truck carries nitro-glycerine. il Automobile 28:1274 Je 19 '13
 Star truck models. il Automobile 29:519 S 18 '13
 Steel bodies for motor trucks. M. A. Hall. il Sci Am 108:500 My 31 '13
 Truck developments prominent at Brill co. exhibit. Elec Ry J 42:737 O 14 '13
 Trucking to the polar circle. il Automobile 29:592-3 O 2 '13
 Trucks do well in Washington Post commercial car run. il Automobile 28:970 My 8 '13
 Use of motor trucks in heavy contracting. Concrete Cem 2:89-90 F '13
 Use of motor trucks in the delivery of cement. il Concrete Cem 1:61-2 D '12
 Variable speed hydraulic transmission for motor trucks. il Sci Am 109:208 S 13 '13
 Very heavy motor-drawn truck. il Eng N 69: 93 Ja 16 '13
 Vulcan wins Washington contest. il Automobile 28:1007-11, 1038-9 My 15 '13
 What motor truck would suit me best? a composite price list of American motor trucks and delivery wagons arranged according to carrying capacity. T. M. R. von Kéler. Sci Am 108:72 Ja 18 '13

See also Accelerometer; Automobiles; Electric trucks; Motor cycle trucks; Motor truck driving; Motor truck industry; Motor truck routes

Cost of operation

- Availability of motor trucks for mines. Eng & Min J 96:731-4 O 18 '13
 Chicago efficiency bureau estimates that electric trucks would save \$15,775 yearly. Automobile 29:1158-9 D 18 '13
 Comparative operating expenses of horse, electric and gasoline commercial vehicles. il Elec W 61:336-7 My 3 '13
 Comparison of motor trucks with horses. il Dom Eng 63:146-8 My 10 '13
 Cost estimates of horse and motor trucks. J. Ritchie, jr. il Sci Am 108:70-1 Ja 18 '13
 Cost-keeping system for warehouse trucks. Automobile 28:342-3 My 1 '13
 Cost of gasoline truck service. R. C. Reid. Sci Am 108:182 F 22 '13
 Cost of motor truck hauling on Catskill aqueduct tunnel. New York. Munic Eng 45:565-70 D '13
 Cost of operating motor trucks. Munic Eng 44:444-6 My '13
 Cost of operating motor trucks; charts for conveniently determining trucking economy. L. Ruprecht. Eng M 44:118-20 O '12
 Cost of upkeep of horse-drawn vehicles against electric vehicles. W. R. Metz. Am Soc M E J 35:577-91 Ap '13; Discussion. 35: 1247-57 Ag '13
 Disinterested suggestions on motor truck costs. H. W. Perry. Sci Am 108:294 Mr 29 '13
 Economy of motor trucks in engineering and contracting. R. W. Hutchinson. Concrete Cem 2:194-5 Ap '13
 Increasing the efficiency of trucks. H. W. Weyssz. Automobile 29:68-70 Jl 10 '13
 Light delivery cost. Automobile 28:814-6 Ap 19 '13
 Locomobile truck system devised for vehicle users' cost keeping. Automobile 28:1030-3 My 15 '13
 Newark foundrymen's association hears speakers on relative merits of electric, gasoline and horse-drawn trucks. Iron Age 92:852-3 O 16 '13
 Teams and motor trucks compared. H. W. Perry. Sci Am 108:66 Ja 18 '13
 Trucks save 86.6 per cent. in heavy work. il Automobile 28:1172-4 Je 5 '13
 What motor trucks have saved for a brewer. J. E. Blaise. Sci Am 108:182 F 22 '13

Engines

See also Automobile engines

Exhibitions

- Commercial section of 1913 Chicago show. il Automobile 28:451-5 F 13 '13
 Exhibition of British society of motor manufacturers and trades. il diags Automobile 29:223-7, 269-75 Ag 7-11 '13
 New York's truck show opens. il Automobile 28:267-72 Ja 23 '13
 Six new types at Boston truck show. il Automobile 28:716-7 Mr 27 '13
 Some features of the 1913 motor truck show in New York city. il Eng N 69:350-2 F 20 '13
 Trucks at the Paris show. diags Automobile 28:230-2 Ja 16 '13

Fuel

See also Automobile engines—Fuel

Gearing

- Methods of drive in commercial motor vehicles. R. Babcock. il Sci Am 109:324-6 O 25 '13

Inspection

- Inspection of trucks. Automobile 28:596-8 Mr 6 '13
 Inspection reports. Automobile 28:728-9 Mr 27 '13

Manufacture

- Milling motor truck spring chairs. G. E. Pope. diags Mach 19:617-8 Ap '13

Motor trucks—Manufacture *Continued.*

Tools used by the Gramm motor car co., Lima, O. P. Steiner. *il Mach* 19:366-8 Ja '13

Records

Increasing the efficiency of trucks. H. W. Weyssz. *Automobile* 29:68-70 Jl 10 '13
Light delivery cost. *Automobile* 28:814-6 Ap 10 '13
Lyon brewery, New York city—complete records of full truck-operating cost. *Automobile* 28:550-1 F 27 '13
N. Y. Edison co.'s truck system. *Automobile* 29:122-4, 160-1 Jl 17-21 '13
Service recorder. *Ry Age* 54:1610 Je 27 '13
Vehicle movement recording device. *il Sci Am* 109:248 S 27 '13

Testing

French army truck tests. *il Automobile* 28:812-3 Ap 17 '13
Testing a federal motor truck. *il Automobile* 29:470-1 S 11 '13
Testing trucks on the Mexican border. *il Automobile* 29:34 Jl 3 '13

Wheels

Analysis of requirements in truck wheels. *Automobile* 28:676-8 Mr 20 '13
Cast-steel wheels for trucks. *diags Automobile* 28:805-6 Ap 10 '13
Dow dual truck wheels. *plans Automobile* 28:486-7 F 13 '13
Dual wheel system for motor trucks. *il Iron Age* 31:494 F 20 '13
Iron-tired truck wheels. *diags Automobile* 28:719-20 Mr 27 '13
Requirements of cast steel wheels. G. Walther. *diags Automobile* 29:82-3 Jl 10 '13
Soc. A. E. standard motor truck wheel. *Automobile* 28:253 Ja 16 '13
Tire for motor trucks. C. F. Jenkins. *il Sci Am* 108:228 Mr 8 '13
Wheels for commercial vehicles. A. J. Slade. *Automobile* 28:1300-11 Je 26 '13

Motor trucks, Municipal

Automobile truck for refuse and street sweepings. *il Munic Eng* 44:119-21 F '13
Five job municipal vehicle. *il Automobile* 29:276-8 Ag 14 '13
Kissel kars in water works departments. *il Munic Eng* 45:561-2 D '13
Motor sweepers save 12 to 60 per cent. *il Automobile* 28:1064-5 My 22 '13
Motor trucks in municipal contracting. H. W. Perry. *il Munic Eng* 44:530-3; 45:31-5, 122-7 Je-Ag '13

Motor trucks for libraries

Library books delivered by automobile. *il Automobile* 29:75 Jl 10 '13

Motor trucks in mining

Availability of motor trucks for mines. *Eng & Min J* 96:731-4 O 18 '13
First aid truck for miners made by White company. *il Automobile* 29:1161 D 18 '13
Motor truck ore haulage in Arizona. C. L. Edholm. *il Eng & Min J* 95:1177-8 Je 14 '13
Motor trucks for mines. O. H. Sonne. *Eng & Min J* 96:457 S 6 '13
Motor trucks for mines. J. Younger. *Eng & Min J* 96:1024 N 20 '13
Motor trucks in metal-mining industries. R. W. Hutchinson, jr. *il Eng M* 16:365-79 D '13
Motor trucks in mining. D. Ross. *Eng & Min J* 96:366-7 Ag 23 '13

Motor trucks in postal service

Trucks in British postoffice. C. Wheeler. *Automobile* 28:1271 F 19 '13

Motor vehicles

Motor traffic in Massachusetts. J. E. Sullivan. *Automobile* 29:543-5 S 25 '13

See also Automobiles; Cyclecars; Electric trucks; Electric vehicles; Motor boats; Motor cars (railroad); Motor carts; Motor cycle trucks; Motor cycles; Motor ice boats; Motor omnibuses; Motor sleds; Motor trucks

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Mountain railroads

Darjeeling Himalayan railway. L. R. Freeman. *il Ry Age* 53:327-9 Ag 22 '13
Jungfrau railway. *il Sci Am* 109:360 N 8 '13
Mountain railway electrification: a study of the Tehachapi pass. A. H. Babcock. *Am Inst E E Pro* 32:1784-1815 S '13; Excerpts. *Ry Age* 44:7-9 S 12 '13
Reconstruction of Mahanoy plane. Philadelphia & Reading Ry. co. J. S. Ward. *il plan Eng N* 70:1220-7 D 18 '13
Remarkable survival of the inclined plane. *Eng N* 70:1217-8 D 18 '13
Scaling mountain peaks by elevator. *il Sci Am* 8:75:164-5 Mr 15 '13
Transandean railway from Arica, Chile, to La Paz, Bolivia. G. H. Sawyer. *il map Eng N* 70:1059-62 N 27 '13

Moving a 100,000-gallon tank and its 140-foot tower of international harvester co., West Pullman, Ill. *il Eng Rec* 67:607 My 31 '13

Moving and talking pictures

Exhibition of improved talking pictures and moving pictures in natural colors. *Sci Am* 108:539 Je 14 '13

Moving and talking pictures. *il Sci Am* 108:64 Ja 18 '13

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Moving picture theaters

Installation of motion-picture machines. *Elec R & W Elec N* 62:29-30 Ja 4 '13
Rules promulgated for the ventilation of picture theatres. *Heat & Ven* 10:33-4 Ap '13
Theatre ventilation situation in Chicago. *Heat & Ven* 10:49 O '13

Moving pictures

Moving pictures as targets for marksmen. *il plan Elec W* 62:302 Ag 9 '13
Moving pictures at home. *Sci Am* 108:544 Je 14 '13
Non-inflammable cinematograph films. *Sci Am* 8:75:83 F 8 '13
Rapid telephotography. R. Grimshaw. *Sci Am* 109:286 O 11 '13
Shooting at moving pictures. *il Sci Am* 109:49 J 19 '13

See also Cinematographs; Kinetophone

Moving pictures, Colored

Exhibition of improved talking pictures and moving pictures in natural colors. *Sci Am* 108:539 Je 14 '13

Moving pictures, Talking. *See Moving and talking pictures*

Moving pictures in industry

Growing use of commercial motion pictures. *il Iron Age* 91:886-7 Ap 10 '13
Industrial advancement through motion pictures. F. W. Keough. *il Am Ind* 13:13-8 Ja '13

Micro-motion study. J. G. Aldrich. *il Am Soc M E J* 55:477-81 Mr '13

Micro-motion study. F. B. Gilbreth. *Am Soc M E J* 55:872-4 My '13

Micro-motion study: a new development in efficiency engineering. *il Sci Am* 108:84 Ja 25 '13

Micro-motion study by means of chronometer and moving picture machine. *il Ind Eng* 13:1-4 Ja '13

Micro-motion study in industry. R. T. Kent. *il Iron Age* 91:34-7 Ja 2 '13

Motion pictures from the shops. *Automobile* 28:891 Ap 24 '13

Motion pictures in industry. *Iron Tr R* 52:363 F 6 '13

Moving picture records of a building in construction: Machinery hall, at the Panama-Pacific exposition. *il Sci Am* 8:76:52 Jl 26 '13

Moving pictures as an aid to mine accident prevention. *Colliery* 34:97-8 S '13

Moving pictures in industry—*Continued.*

- Moving pictures for industrial purposes. Met & Chem Eng 11:228 My '13
 Moving pictures in railway educational work. Am Eng 87:67-8 F '13
 Moving pictures in railway educational work in Georgia. D. C. Boy. Am Eng 87:174 Ap '13
 Rogers-Brown pictures, mine to molder presented before Newark assn. Iron Tr R 52:428 F 13 '13

Mowing machines

- Molding large mower frames by machine. il Foundry 41:185-6 My '13

Mufflers

- Internally cooled muffler and its effects. diag Automobile 29:14 Jl 3 '13

Mules

- Animal haulage in mines. B. S. Randolph. il Colliery 34:139-42 O '13
 Practical rule haulage. A. E. Thompson. Colliery 34:166-7 O '13

Multicycles

- English multicycles for the blind. F. C. Perkins. il Sci Am 108:352 Ap 19 '13

Multigraph

- Fixtures and gages used in manufacturing the multigraph; devices used in the lathe, shaper and milling machines. D. T. Hamilton. il Mach 19:609-11 Ap '13

Municipal accounting

- Cost system for street cleaning in Washington. J. W. Paxton. Eng Rec 68:296-7 S 13 '13
 Municipal cemetery accounts. D. C. Eggleston. J Account 15:174-84 Mr '13
 Municipal recognition of the certified public accountant in Cleveland. C. H. Nau. J Account 16:99-109 Ag '13
 Uniform system of accounting for second-class cities. J. J. Magilton. J Account 15:90-5 F '13

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Municipal art

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- Municipal automobiles.** *See* Automobiles, Municipal; Motor trucks, Municipal

Municipal boards and commissions

- Organization and functions of a city-planning commission. W. A. Magee. Eng N 69:976-7 My 8 '13; Eng Rec 67:552 My 17 '13

Municipal bonds

- Bond issue for Los Angeles municipal distribution system defeated. Elec W 61:867-8 Ap 26 '13
 Meaning of the Los Angeles bond election. Eng N 69:917-8 My 1 '13
 Recent \$17,600,000 bond election at Los Angeles. B. A. Heiny. Eng N 69:931-2 My 1 '13

- Municipal buildings.** *See* Public buildings

Municipal centers

- Civic center of Des Moines. G. B. Lord. il Munic Eng 44:194-6 Mr '13
 Our earliest civic center: the Independence hall group in Phila. T. Brabazon. il Arch Rec 34:1-19 Jl '13

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Municipal charters

- Cleveland's new charter. Eng Rec 68:31 Jl 12 '13

- Municipal electric plants.** *See* Electric plants, Municipal

Municipal employees

- Rating the efficiency of municipal employees. Eng Rec 67:665 Je 14 '13

Municipal engineering

- Motor trucks in municipal contracting. H. W. Perry. il Munic Eng 44:530-3 Je '13
 Municipal need of technically trained men. E. Blankenburg. Sci Am 108:342 Ap 12 '13
 Piece work system applied to city forces. J. E. Tupper. Munic Eng 45:115-8 Ag '13
 Proposed new Cleveland charter and the engineering organization of cities. Eng N 69:583-4 Mr 20 '13
 Records in a city engineer's office. Munic Eng 45:148-9 Ag '13

- Suggestions for city engineers.** Eng Rec 68:352 S 27 '13

- Trenton, N. J., public comfort station. il plan Dom Eng 65:68 O 18 '13
 Year's experience with the Boston public works department organization. Eng N 69:1048-9 My 22 '13

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Municipal engineers

- Borough surveyor and master of works for \$389 a year! Eng N 69:1109 My 29 '13
 Relations of consulting and municipal engineers in Great Britain. H. C. Shenton. Eng N 70:206-8 Jl 31 '13
 Standardizing city engineers' salaries. Eng Rec 67:498-500 My 3 '13

Municipal finance

- Central purchase and distribution of supplies for New York city: plan of W. A. Prendergast. Eng Rec 67:359-61 Mr 29 '13
 Cincinnati's purchasing system. Munic Eng 45:217-23 S '13

- Classified salary and wage budget estimates of Chicago for 1913. Eng N 69:401 F 27 '13

- Estimating the cost of garbage and refuse collection and haulage in Chicago. Eng N 69:106-7 Ja 16 '13

- Fargo declares a municipal dividend. W. D. Sweet. Munic Eng 44:121-2 F '13

- Land-tax system or benefit assessments for public improvements in Kansas City, Mo. G. Kessler. Eng N 69:1026 My 15 '13

- Lending city credit to aid railway projects. Eng N 69:967-8 My 8 '13

- Making assessments to meet the cost of constructing sewers and drains. Munic Eng 45:536-7 D '13

- Street cleaning and garbage collection efficiency studies of the Chicago civil service commission. Eng N 69:123 Ja 16 '13

- Street cleaning and garbage collection methods in Chicago. Eng Rec 67:24-6 Ja 4 '13

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Municipal franchises

- Franchises and municipal home rule. Munic Eng 45:556-7 D '13

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Municipal government

- Engineers as heads of New York city departments. Eng N 70:1045-6 N 20 '13
 Engineers as municipal department heads. Eng Rec 68:585-6 N 22 '13

- Proposed new Cleveland charter and the engineering organization of cities. Eng N 69:583-4 Mr 20 '13

- Self-appointed and popularly-elected municipal experts. Eng N 70:368-9 Ag 21 '13

- Verband Gross-Berlin, a new form of metropolitan government. Eng N 70:310 Ag 14 '13

- Work of Efficiency division, Chicago civil service commission. Eng Rec 67:629-31 Je 7 '13

- Year's experience with the Boston public works department organization. Eng N 69:1048-9 My 22 '13

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City manager plan

- City manager plan. Eng N 69:525-6 Mr 13 '13

- City manager plan again. Eng N 70:313-4 Ag 14 '13

- City-manager plan at Clarinda, Iowa. Eng N 70:801 O 23 '13

- New home rule charter of Dayton, Ohio. Munic Eng 45:270-3 S '13

Commission plan

- New move in commission government. Eng Rec 67:594 My 31 '13

- Progress of the commission plan of city government in 1912. Eng N 69:315 F 13 '13

- Municipal government—Commission plan—Cont.**
 Twelve years of commission government. E. S. Bradford. *Munic Eng* 43:502-10 D '13
 What Cedar Rapids has done in five years under commission plan of government. L. Roth. *il Munic Eng* 44:448-50 My '13
- Municipal improvement**
 Land-tax system or benefit assessments for public improvements in Kansas City, Mo. G. Kessler. *Eng N* 69:1026 My 15 '13
 Municipal improvements for 1913 listed by subjects and states. *Munic Eng* 44:200-39 Mr '13
 Public sentiment effects civic improvement. A. W. Grant. *Munic Eng* 44:255-7 Mr '13
See also Baths, Public; Building laws; City planning; Fire protection; Housing problem; Municipal centers; Municipal government; Parks; Pavements; Playgrounds; Public comfort stations; Public health; Refuse and refuse disposal; Sanitary engineering; Smoke prevention; Street cleaning; Street lighting; Streets
- Municipal improvements, American society of.**
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 Municipal responsibility for strike damages: digest of briefs in case of Wells Fargo & Co. v. Jersey City. *Elec Ry J* 42:186-7 Ag 2 '13
 New York smoke ordinance unconstitutional. *Power* 38:174 JI 29 '13
 Ordinance governing billiard rooms. *Munic Eng* 45:140-1 Ag '13
 Ordinance regulating weighmaster. *Munic Eng* 45:138-9 Ag '13
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- Municipal leagues**
 Report of Franchise committee of National municipal league. *Elec Ry J* 42:1197-8 N 22 '13
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- Municipal ordinances.** *See* Municipal law
- Municipal ownership**
 Central-station results at Holland, Mich. *Elec W* 61:250 F 1 '13
 Detroit's municipal asphalt plant. H. B. Pullar. *il Munic Eng* 45:435-7 N '13
 Detroit's municipal ownership amendments carried. *Elec Ry J* 41:731-2 Ap 19 '13
 Detroit's municipal ownership charter amendments. *Elec Ry J* 41:557 Mr 22 '13
 Failure and success in municipal ownership. *Munic Eng* 44:299-304 Ap '13
 Governor Dunne favors municipal ownership. *Elec W* 61:288 F 8 '13
 Investigation of municipal asphalt plants; cost data collected in report recommending plant for Washington, D. C. *Eng Rec* 67:160-2 F 8 '13
 Municipal asphalt plant of St. Louis, Mo. *il Munic Eng* 45:324-8 O '13
 Municipal asphalt repair plant at St. Paul, Minn. *Munic Eng* 45:63-4 JI '13
 Municipal electrical enterprise in England. A. Briton. *Elec W* 62:1205 D 13 '13
 Municipal ice-electric plant at Weatherford, Oklahoma. *il plan Elec W* 62:430 Ag 30 '13
 Municipal light and water plant at Fremont, Neb. H. J. Bremers, jr. *il Munic Eng* 45:119-21 Ag '13
 Municipal railway line in Seattle. map *Elec Ry J* 41:752-4 Ap 26 '13
 Municipal slaughter house at Grand Forks, N. D. H. G. Lykken. *Munic Eng* 45:332-3 O '13
 Pasadena municipal lighting plant. *il Munic Eng* 44:595-11 Je '13
 Proposed sale of Toronto utilities to the city. *Elec Ry J* 42:941-2 O 25 '13; Same. *Elec W* 62:832-3 O 25 '13
 Provisions of Detroit municipal ownership amendment. *Elec Ry J* 41:903 My 17 '13
- Selling water at a profit. A. W. Seng. *il Munic Eng* 44:580-2 Je '13
 Successful municipal lighting plant at Crawfordsville, Ind. *il plan Munic Eng* 44:80-8 F '13
 What is a failure in municipal ownership? *Munic Eng* 44:202-3 Mr '13
 Why some municipal asphalt plants fail. H. B. Pullar. *Munic Eng* 45:231-4 S '13
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- Municipal records**
 Why the municipal office needs modern system. E. H. Gilman. *Munic Eng* 44:499-501 Je '13
- Municipal research**
 Results of an efficiency survey of Los Angeles. *Munic Eng* 45:149-51 Ag '13
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- Municipal statistics**
 Municipal publicity. H. A. Stuart. *Munic Eng* 44:43 Ja '13
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- Museum of safety**
 Museums of safety and their activities: a brief history of movement for prevention of industrial accidents. M. S. Hutton. *Mach* 19:31-2 S '12
- Museums**
 Educational work of a great museum. H. I. Smith. *Sci Am S* 75:86-7 F 8 '13
 New Vienna museum of technology and the industrial arts. *Sci Am* 108:50 Ja 11 '13
- Music**
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- Muskogee electric traction company, Muskogee, Okla.**
 New carhouse and shop. *il Elec Ry J* 42:1010-2 N 8 '13
- Myriawatt**
 Boiler-horse-power: the myriawatt. W. D. Weaver. *Elec W* 62:92-3 JI 12 '13
 Myriawatt. *Power* 38:381-2 S 9 '13
 Myriawatt. H. O'Neill. *Power* 38:350-1 N 11 '13
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 Myriawatt as a unit of power. *Elec Ry J* 41:96-7 Ja 18 '13; *Sci Am* 108:112 F 1 '13
 New unit. *Ind Eng* 13:120-1 Mr '13
 Standardization of the myriawatt. H. G. Stott and H. O'Neill. *Am Soc M E J* 35:9-12 F '13; Discussion. 35:21-38, 1235-43 My, Ag '13; *Am Inst E E Pro* 32:1731-7 Ag '13
- N**
- Names**
 Wrongly named substances. *Sci Am* 105:434 My 10 '13
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- Narrow gage railroads.** *See* Railroads, Narrow gage
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 Water supply
 How to repair the Nashville masonry reservoir. plan *Eng N* 69:278-80 F 6 '13
 Nashville reservoir—why it failed and how it will be repaired. R. Hering. plan *Eng Rec* 67:134-5 F 1 '13

- Nashville, Chattanooga & St. Louis railway
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- National association of cement users**
9th annual convention, Pittsburgh, 1912. Con-
crete Cem 2:3-5 Ja '13
Program of 9th annual convention, 1912. Con-
crete Cem 1:40 D '12
- National association of corporation schools**
National association of corporation schools.
F. C. Henderschott, Am Inst E E Pro 32:
1405-8 Je '13
New industrial education organization. Elec
Ry J 41:183 F 1 '13
Organization meeting, 1913, and list of offi-
cers. Elec Ry J 41:205 F 1 '13
Report of organization meeting, 1913. Eng
Rec 67:sup 41 F 1 '13
Training of employees. Eng Rec 67:115 F 1
'13
- National association of cotton manufacturers**
95th semiannual meeting, Atlantic City,
Sept. 30 to Oct. 2, 1913. Power 38:552-3 O
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- National association of manufacturers**
18th annual convention, Detroit, Mich., May
19-21, 1913; resolutions adopted. Am Ind
13:8-12 Je '13
- National association of master plumbers**
31st convention, Philadelphia, June, 1913.
Dom Eng 62:368-81 Je 28 '13
- National association of master steam and hot
water fitters**
Silver anniversary of the association celebrat-
ed, June, 1913. Dom Eng 61:5-13 Ji 5 '13
Supplementary report of proceedings at an-
nual convention, Niagara Falls, 1913. Heat
& Ven 10:44-5 Ag '13
25th annual convention, Niagara Falls, June,
1913. Heat & Ven 10:39-5 Ji '13
- National association of railway commissioners**
25th annual convention at Washington,
D. C., Oct. 1913. Ry Age 55:869-71 N 7 '13
25th annual convention, in Washington, Oc-
tober 28-31. Ry & Eng R 53:1042-3 N 8 '13
25th annual convention with abstracts of re-
ports of committees. Elec Ry J 42:973-82,
1013-6 N 1-8 '13
- National association of stationary engineers**
National license committee report. Power 37:
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31st annual convention, Springfield, Mass.
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- National civic federation**
Annual meeting, Dec., 1913; Report on model
public utility bill; papers on workmen's
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railroads. Elec Ry J 42:1238-40 D 13 '13
Annual meeting, 1913; with abstracts of pa-
pers by E. McMillin, S. Low, M. E. Marks,
A. Belmont. Elec Ry J 41:210-5 F 1 '13
Department on regulation of interstate and
municipal utilities. Elec W 61:185-6 Ja 25
'13
13th annual conference, 1913. Elec W 61:231-
2 F 1 '13
- National conference on city planning**
Fifth conference, Chicago, May, 1913. Elec
W 61:1022 My 17 '13
- National conference on marketing and farm
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Meeting, Chicago, 1913. Ry & Eng R 53:
341 Ap 12 '13
- National conservation congress**
Action of the 5th National conservation con-
gress. Elec W 62:1096-8 N 29 '13
5th annual session, held in Washington, Nov.
18-20, 1913. Power 38:839-40 D 9 '13
Proceedings of 5th annual session, Wash-
ington, Nov., 1913. Elec W 62:1039-40 N
22 '13
Proceedings of 5th congress, Washington,
Nov., 1913. Eng Rec 68:sup 53 N 22 '13
Recommendations adopted. Eng Rec 68:601-2
N 29 '13
Report of Committee on water power. Eng N
70:1106-7 N 27 '13
- National contractors' association**
Activities. Elec W 61:131 Ja 18 '13
- National council for industrial safety**
Second annual Congress, New York, Sept. 22-
25, 1913. Iron Age 92:748 O 2 '13
- National district heating association**
5th annual convention, Indianapolis, May,
1913. Dom Eng 63:281-5 Je 7 '13
5th annual convention, Indianapolis, May,
1913. Elec W 61:1299-1301 Je 14 '13; Power
37:841-3 Je 10 '13
5th annual convention, Indianapolis, May,
1913. Heat & Ven 10:29-35 Je '13
5th annual convention, Indianapolis, May,
1913; program. Heat & Ven 10:34-5 My
'13
- National drainage congress**
Third annual meeting, St. Louis, 1913. Eng
Rec 67:sup 35-6 Ap 19 '13; Eng N 69:875-7
Ap 24 '13
- National electric code**
Important code change suggested. Elec W
61:553-4 Mr 15 '13
- National electric lamp association**
Physical laboratory of the National electric
lamp association. E: P. Hyde. J Fr Inst
176:77-93 Ji '13
- National electric light association**
Conference of public policy committees of
National Elec. Light Assn. and Am. Elec.
Ry. Assn. Elec W 61:384 F 22 '13
Co-operation with Am. Elec. Ry. Assn. Elec
W 61:381-2 F 22 '13
Eastern New York section, annual meeting,
Lake George, N. Y., Sept., 1913. Elec W 62:
574-6 S 20 '13
Michigan section, 2d annual convention, Ot-
tawa Beach, Mich., Aug., 1913. Elec W 62:
415-6 Ag 30 '13
New England section, 5th annual convention,
Burlington, Vt., Sept., 1913. Elec W 62:626-
8 S 27 '13
Official convention program for Chicago meet-
ing, June, 1913. Elec W 61:1020-1 My 17
'13
Papers and discussions at 36th annual con-
vention, Chicago, June, 1913. Elec Ry J
41:1012-5, 1037-60 Je 7-14 '13
Papers and discussions at 36th annual con-
vention, Chicago, June, 1913. Elec W 61:
1243-42 Je 7 '13
Southeastern section, 1st annual convention,
Macon, Ga., Aug., 1913. Elec W 62:368-9,
427-9 Ag 23-30 '13
36th annual convention, Chicago, June 2-6,
1913; condensed program. Elec W 61:1124
My 31 '13
36th convention, Chicago, June, 1913. Elec W
61:1206-9 Je 7 '13; Eng N 69:1243-6 Je 12
'13; Power 37:917-20 Je 24 '13
- National electrical contractors' association**
13th annual convention, Chattanooga, July,
1913. Elec W 62:171-3 Ji 26 '13
- National electro-platers' association**
51st regular monthly meeting, April 25, 1913.
Metal Ind n s 11:230 My '13
4th annual banquet, New York, Feb. 21, 1913.
Metal Ind n s 11:141-3 Mr '13
- National fire protection association**
Changes in the National electric code. Elec
W 61:658 Mr 29 '13
17th annual convention, New York, May,
1913. Arch & Bldg 45:205-7 My '13
17th annual convention, New York, May,
1913; abstract of reports. Eng N 69:1091-
3 My 22 '13
- National forests.** See Forest reserves
- National founders' association**
Reports of meeting held in New York, Nov.
19-20, 1913. Iron Age 92:1219-23, 1246-51 N
27 '13
17th annual convention, New York city,
Nov. 20. Iron Tr R 53:989-97 N 27 '13
- National housing conference**
2d conference in Philadelphia, 1913. Arch
Rec 33:186 F '13
- National independent telephone association**
16th annual convention, Chicago, Feb., 1913.
Elec W 61:487-8 Mr 8 '13

National industrial traffic league

Annual meeting at Chicago, Nov. 13-14, 1913.
Ry Age 55:962-4 N 21 '13

National machine tool builders' association

Annual convention, New York, 1913. Iron Age 92:272-4 O 30 '13

Semiannual convention, New York, May, 1913.

Iron Age 91:1232-3 My 22 '13

12th annual convention. Iron Tr R 53:813-4 O 30 '13

National metal trades association

15th annual convention, New York, April, 1913. Iron Age 91:944-8 Ap 17 '13

Pension plan for workmen proposed by Wm. Lodge at 15th annual convention, New York, 1913. Iron Tr R 52:870-2 Ap 10 '13

Welfare of employes discussed by employers at 15th annual convention, New York, 1913.

Iron Tr R 52:930-4 Ap 17 '13

National railway appliances association

Annual meeting, Chicago, 1913. Ry & Eng R 53:269-70 Mr 22 '13

National supply and machinery dealers association

Indianapolis meeting, April, 1913. Iron Age 91:950-1, 971-3 Ap 17 '13

3rd annual meeting, New York, Oct. 1913. Iron Age 92:975-6 O 30 '13

Natural gas. See Gas, Natural**Natural resources**

Disposition of natural resources. G. O. Smith. Am Inst Min E Bul 82:2403-8 O '13

See also Conservation of resources; Forests and forestry; Mineral lands; Mines and mineral resources; Reclamation service; Water power

Natural science. See Science**Nature**

Against the sun: spiral twists in nature. A. H. Kennedy. Il Sci Am S 75:396-7 Je 21 '13

Harnessing nature? Sci Am 108:304 Ap 6 '13

See also Science

Nautical surveying. See Hydrographic surveying**Naval aeronautics. See Aeronautics, Naval****Naval architects and marine engineers. See Society of naval architects and marine engineers****Naval architecture**

Atlantic steamships—a retrospect: thirteen years' development. J. B. Walker. Il Sci Am 109:472-3 D 20 '13

Berkshire, a new Hudson river steamboat. Il Arch & Bldg 45:355-60 S '13

Corrugated ships. G. S. MacIlwaine. Il Eng M 44:938-40 Mr '13

Hudson river steamer Washington Irving. Il Int Marine Eng 18:275-8 J '13

Imperator: details of the equipment. Il Eng M 44:107-9 O '12

Mail and passenger steamship Kyle for Newfoundland. F. C. Coleman. Il plan Int Marine Eng 18:292-3 J1 '13

New Pacific coastwise steamship Congress. Il plans Int Marine Eng 18:283-6 J1 '13

Old Dominion line's freight steamer Tyler. Il plans Int Marine Eng 18:369-74 S '13

Old-time war vessel, Wolverine, on the Great Lakes. N. Wilber and L. Isaacs. Il plans Int Marine Eng 18:524-30 D '13 (to be cont)

Protection of ocean liners by subdivision. Il Sci Am 108:356 Ap 19 '13

Single screw molasses tank steamer Amolco. plans Int Marine Eng 18:378-82 S '13

Stern recess wheel steamer Osceola. plan Int Marine Eng 18:481-3 N '13

Unsinkable ship. Sci Am 109:486 D 27 '13

See also Freight ships; Motor ships; Shipbuilding; Ships, Iron and steel; Steamboats; Training ships; Warships

Naval art and science

Battleship drill indoors: how New York trains her naval militia. Il Sci Am 109:29 J1 12 '13

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Naval artillery. See Naval guns**Naval boilers. See Boilers, Marine****Naval gunnery. See Gunnery****Naval guns**

Anti-destroyer guns. S. G. Koon. diag Int Marine Eng 18:237-8 Je '13

Cycle in naval gun construction. Sci Am 109:374 N 15 '13

Guns for submarines. A. Gradenwitz. Il Sci Am 108:222 Mr 8 '13

Naval supplies

Doing business with the U. S. Navy. C. A. Harrington. Iron Age 91:1116-7 My 8 '13

Fuel oil for the navy. Eng & Min J 96:1105-6 D 13 '13

Navies

See also Warships

Navigation

Aspects of transportation: ocean transportation. J. E. Kuhn. Sci Am S 76:166-7 S 13 '13

Chain fenders for the Panama canal: details of the hydraulically operated devices for bringing ships to rest. Il plan Iron Age 92:294-6 Ag 7 '13

Determining position at sea by wireless. J. Erskine-Murray. Il Eng M 44:949-51 Mr '13

Experiments on "suction" between passing vessels. A. H. Gibson and J. H. Thompson. diag Sci Am S 76:269-72 O 25 '13

Factors in channel design. Eng Rec 67:242-3 Mr 1 '13

Iceberg indicator. Il Sci Am 108:584 Je 28 '13

Perils of navigation on the Hudson Bay route. Eng N 69:222-3 Ja 30 '13

See also Aeronautics; Buoys; Ferryboats; Harbors; Hydroaeroplanes; Hydrographic surveying; Launching; Lifeboats; Light-houses; Motor boats; Safety at sea; Ship propulsion; Shipbuilding; Shipping; Steamboats; Submarine boats; Yachts

Navigation laws. See Maritime law**Navigation of rivers. See Rivers, Right of navigation of****Nebraska****Antiquities**

Prehistoric dwelling in Nebraska: a cannibal charnel house unearthed. R. F. Gilder. Il Sci Am S 76:220 O 4 '13

Nebraska master plumbers' association

4th annual convention at Fremont, Feb., 1913. Dom Eng 62:254-7 Mr 1 '13

Needlework

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Negligence

Criminal prosecution of careless railway employees in Great Britain. H. R. Wilson. Eng N 70:886-7 O 30 '13

See also Workmen's compensation

Neon

Appearance of helium and neon in vacuum tubes. J. J. Thomson. Sci Am S 75:150 Mr 8 '13

Birth of the atom: has matter been synthesised. Sci Am S 75:154-5 Mr 8 '13

Development of neon tubes. G. Claude. Eng M 46:271-4 N '13

Has matter been synthesised? J. W. N. Sullivan. Sci Am 108:226 Mr 8 '13

Neradol

Synthetic tannin. Sci Am S 76:147 S 6 '13

Neutral axis

Location of neutral axis in curved or bent beams. J. P. Shamberger. Eng Rec 68:590 N 22 '13

Nevada consolidated copper company

Report for 1912. Eng & Min J 95:896 My 3 '13

New Bedford, Massachusetts

Past century charm of New Bedford. G. N. Rosé. Il Arch Rec 33:424-33 My '13

Sanitary affairs

Sewage disposal at New Bedford, Mass. W. N. Charles. plans Eng N 70:216-9 J1 31 '13

New England

Railroads in New England. H. Elliott. Ry Age 55:615-6 O 3 '13

New England street railway club

Meeting, Boston. May 22, 1913. Elec Ry J 41:275-1 My 31 '13

Monthly meeting, Feb. 26, 1913. Elec Ry J 41:369 Mr 1 '13

Relation of the chemist to the electric railway. Elec Ry J 42:1142-3 N 29 '13

13th annual meeting and banquet, Boston, 1913. Elec Ry J 41:590 Mr 29 '13

New England water works association

Abstracts of some papers presented at 32d annual convention, in Philadelphia, September, 1913. Eng Rec 68:289-91 S 13 '13

32d annual convention, Philadelphia, Sept., 1913. Eng N 70:567-8 S 18 '13

New Geneva, Pennsylvania**Bridges**

Erecting the New Geneva bridge. il plan Eng Rec 67:456-60 Ap 26 '13

New Haven and Hartford railroad. See New York, New Haven and Hartford railroad

New Jersey**Law**

Anti-injunction bill in New Jersey. J. A. Emery. Am Ind 13:9-11 Ap '13

New Jersey state license law for engineers. Power 37:618-9 Ap 29 '13

Sanitary affairs

Uniformity in sewer plans: New Jersey state board of health's new regulations. Eng Rec 68:273-4 S 6 '13

New Jersey and Pennsylvania traction company. Increase in fare ordered by New Jersey commission. Elec Ry J 41:324-5 F 22 '13

New Jersey state association of master plumbers. 12th annual convention, Camden, N. J., June, 1913. Dom Eng 63:351-3 Je 21 '13

New Orleans, Louisiana

Street sanitation in New Orleans. G. S. Smith. il Munic Eng 44:160-2 F '13

New Rochelle, N. Y. Colburn memorial home. Colburn memorial home for the aged. A. E. Davis. il plans Arch & Bldg 45:372-3 S '13

New York (city)

Dock problem in New York. F. K. Thomson. map Eng Rec 68:167 Ag 9 '13

Architecture

Aeolian hall. il plans Arch & Bldg 45:25-9 Ja '13

Court house award. il Arch Rec 33:469-70 My '13

Emigrants' industrial savings bank. R. F. Almirall. il Arch & Bldg 45:17-24 Ja '13

Guaranty trust company building. il Arch & Bldg 45:486-93 D '13

New U. S. post office building for New York. il Arch & Bldg 45:155-61 Ap '13

Praise from Achille Duchene. Arch Rec 33:185-6 F '13

Proposed restrictions for heights of buildings in New York. Eng Rec 68:659-60 D 13 '13

Sculptor of monumental architecture: work of Adolph A. Weinman. C. H. Dorr. il Arch Rec 33:518-22 Je '13

Towers of Manhattan and notes on the Woolworth building. M. Schuyler. il Arch Rec 33:98-122 F '13

See also New York (city)—Grand Central station; Washington Irving high school; Woolworth building, New York

Bridges

Costly lack of co-ordination. Sci Am 109:158 Ag 30 '13

Organization and equipment for maintenance, operation, inspection, repair and renewal of East river bridges, N. Y. plans Eng Rec 67:98-101 Ja 25 '13

Proposed Hudson river bridge and tunnels to connect New York and New Jersey. plans Eng N 69:839-41 Ap 21 '13; Eng Rec 67:367, 381-7 Ap 5 '13

Proposed Hudson river bridge: present necessity for highway and railway bridge at New York city. G. Lindenthal. Eng M 44:779-81 F '13

Churches

Spanish church in New York city, Our Lady of Hope. L. R. McCabe. il Arch Rec 33:14-21 Ja '13

Steel framework of St. Jean Baptiste church. il plans Eng Rec 68:433-6 O 18 '13

Study in church decoration: the Paulist fathers church. C. H. Dorr. il Arch Rec 33:187-203 Mr '13

Description

Vanishing New York. il Arch Rec 34:480-1 N '13

Finance

Suggested salary schedule for New York city engineering employees. Eng N 69:110-1 Ja 16 '13

Grand Central station

Columns in the new Grand Central terminal. plans Eng Rec 67:125-6 F 1 '13

Concourse roof, Grand Central terminal, New York city. plans Eng Rec 67:210-1 F 22 '13

Girders in the Grand Central terminal. plans Eng Rec 67:78-89 Ja 18 '13

Grand Central terminal building. il Arch & Bldg 45:110-54 Ap '13

Grand Central terminal, New York city. il Ry & Eng R 53:77-8 Ja 25 '13

Grand Central terminal, New York: description of details. il plans Ry Age 54:279-84 F 14 '13

Grand Central terminal station. T. Starrett. il Arch & Bldg 45:125-32 Ap '13

History of the Grand Central terminals in New York. il Arch & Bldg 45:137-40 Ap '13

New Grand Central terminal station in New York city: an underground double-deck terminal. il plans Eng N 69:883-95 My 1 '13

Opening of the new Grand Central terminal. il Eng Rec 67:144-8 F 8 '13

Sewage ejectors in Grand Central terminal. J. Graham. Dom Eng 63:180-1 My 17 '13

Harbor

Dock problem in New York. F. K. Thomson. map Eng Rec 68:167 Ag 9 '13

Lighthouses and buoys of New York harbor. J. Pattison. il Int Marine Eng 13:1-4 Ja '13; Same. Sci Am S 75:136-8 Mr 1 '13

New York pier problem settled. Sci Am 108:150 F 15 '13

Solving New York's pier problem with the model basin and the moving picture. Sci Am 108:392 My 3 '13

Hotels

Electrical equipment of a modern hotel: artistic and efficient lighting scheme in McAlpin hotel, N. Y. il Elec W 61:927-30 My 3 '13

Hotel McAlpin. il plan Arch & Bldg 45:43-61 F '13

New York's newest hotel: Hotel McAlpin. D. E. Tarn. il Arch Rec 33:231-41 Mr '13

Law

Revision of New York city's building code. Eng Rec 67:482-3 My 3 '13

Officials and employees

Engineers as heads of New York city departments. Eng N 70:1045-6 N 20 '13

Engineers as municipal department heads. Eng Rec 68:585-6 N 22 '13

Politics and government

Central purchase and distribution of supplies for New York city: plan of W. A. Pendergast. Eng Rec 67:359-61 Mr 29 '13

How the New York purchasing system was established. F. X. A. Purcell. Munic Eng 45:439-4 N '13

New York (city) - *Continued.***Post office**

Heating and ventilating details of the New York general post-office. *il* plans Heat & Ven 10:11-20 Mr '13

New terminal post office in New York; electrical and mechanical equipment, wiring and illumination. L. B. Marks and J. E. Woodwell. *il* Elec W 61:39-43, 137-43, 191-5 Ja 4, 18-25 '13

Public buildings

New York city's power problem. A. D. Blake. *il* plan Power 38:286-90 Ag 26 '13

Railroads

New York's freight terminal problem. map. Ry Age 54:813-5 Ap 11 '13

Problem of river crossing in New York city traffic: tunnel system and railway terminals. G. F. Kunz. Sci Am S 76:370-1 D 13 '13

Suggestion for suburban traffic. Sci Am 109:26 J1 12 '13

See also New York (city)--Grand Central station

Rapid transit

Building a four-track tunnel beneath Broadway, New York. Sci Am 108:154 F 15 '13

Building Harlem river subway tubes. *il* diags Eng Rec 68:390-1 O 4 '13

Contracts signed for New York subways. Ry & Eng R 53:260-2 Mr 22 '13

Costly lack of co-ordination. Sci Am 109:158 Ag 30 '13

Estimated increase in New York's population. Elec Ry J 41:20-1 My 24 '13

Example of good publicity in statement of N. Y. railways co. Elec Ry J 41:281 F 15 '13

Larger car designed for the new subway. *il* Sci Am 109:262 O 4 '13

New York city brake order. J. N. Dodd. Elec Ry J 42:444-9 S 13 '13

New York subway operating contracts approved. Elec Ry J 41:433-4 Mr 18 '13

Progress of the dual subway system. Ry & Eng R 53:1938-9 N 8 '13

Progress of the new Harlem river tunnel: sinking of the first section of tunnel tubes. *il* Sci Am 109:244-5 S 27 '13

Proposed highway bridge and highway tunnels across the Hudson at New York. plans Eng N 69:339-41 Ap 24 '13; Eng Rec 67:367, 384-7 Ap 5 '13; Same cond. Eng M 45:422-4 Jc '13

Railway tunnels of New York city. A. Noble. *il* plans maps J Fr Inst 175:343-84 Ap '13

Rapid transit development in Berlin and New York: subway and elevated lines. maps Elec Ry J 42:377-9 S 6 '13

Rapid transit progress in New York. Elec Ry J 41:598-9 Mr 29 '13

Rapid-transit service on Queensboro bridge. plans Eng Rec 68:728-9 D 27 '13

Report on New York terminals. Ry & Eng R 53:183-4 Mr 1 '13

Shall we have bridges or tunnels? G. F. Kunz. Sci Am S 76:462-3 D 27 '13

Third avenue railway report, 1912. Elec Ry J 41:168 Ja 25 '13

Sanitary affairs

Artificial island proposed for New York sewage disposal. Eng Rec 67:475-6 Ap 26 '13

Low record death rate for New York city. Eng N 69:175 Ja 23 '13

New York city's new garbage disposal contract. Eng N 70:267-8 Ag 7 '13

New York's municipal cleaning campaign. Eng Rec 67:sup 41 Ap 26 '13

Not sea water, but sewage. Sci Am 109:406 N 29 '13

Plans for the disposal of New York's sewage. *il* map Sci Am 108:469 My 31 '13

Seeing New York with the sanitary engineer. J. X. Cohen. Eng Rec 67:76-8 Ja 18 '13

Streets

Congestion of traffic on Fifth ave., N. Y. Munic Eng 44:433-4 My '13

Cresoted wood block pavement in New York. *il* Munic Eng 44:211-6 Mr '13

History of Fifth avenue asphalt pavement. C. Richardson. Eng Rec 67:18-9 Ja 4 '13

Methods and costs of pavement evaluation: inventory of the streets of the Borough of Richmond, New York city. G. W. N. Hallock. Eng Rec 68:613-4 D 6 '13

Street cleaning in New York in 1912. Eng Rec 68:427 O 18 '13

Theaters

Failure of Orpheum theater building. plan Eng N 69:234 Ja 30 '13

Water supply

Abandonment of plans to filter the Croton water. Eng Rec 67:622-3 Jc 7 '13

Abundance and water waste. Eng Rec 68:227 Ag 30 '13

Chlorinating plants, Croton water supply. T. D. L. Coffin. plans Eng N 69:419-22 F 27 '13

New York city's water supply system: Kensico reservoir. *il* Sci Am S 75:140 Mr 1 '13

New York water filtration controversy: symposium. Eng N 69:111-7 Jc 25 '13

Plan to limit unbalanced bidding on city contract work. Eng N 69:777-9 Ap 17 '13

Prevention of water waste in New York. I. M. De Varona. Eng Rec 68:11-2 J1 5 '13

Reports on filtering the Croton water-supply. Eng N 69:1082-91 My 22 '13

Second report on mechanical filters for New York's water supply. Eng Rec 67:sup 39-40 My 10 '13

Water filtration hold-up in New York city. Eng N 69:1075-7 My 22 '13

Water-waste prevention in New York city. W. W. Brush. *il* Eng Rec 68:289-90 S 13 '13

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New York (state)

Population of New York state. Sci Am S 75:256 Ap 19 '13

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Standard types and details of steel girder and truss spans for suburban traffic. diags Eng Rec 68:361-2 S 27 '13

Highway department

Long-term guarantees on state highway contracts in New York. Eng N 70:1196-8 D 11 '13

New York state road organization. Eng N 70:982-1 N 13 '13

Report on highway reorganization in New York state. Eng Rec 68:543-4 N 15 '13

Reports on organization of a highway department for New York. Eng N 69:779-80 Ap 17 '13

Revelations concerning New York state highway work. Eng N 69:80-2 Ja 9 '13

Rules governing the use of heavy vehicles on highways in New York. Eng Rec 68:471-2 O 25 '13

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Exhaust systems for grinding, polishing and buffing wheels: specifications. Mach 19:711-3 My '13

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Criticism of New York's new highway law. Eng Rec 67:462 Ap 26 '13

Hearing on the bill to license engineers in New York. Eng N 69:789-90 Ap 17 '13

New York bills menace motorists. Automobile 28:580-1 Mr 6 '13

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New York (battleship)

Metal work of the New York. *il* Metal Ind n s 11:329-30 Ag '13

New York bay

Development of port facilities on New Jersey side of New York bay. Eng Rec 68:525-6 N 8 '13

New York Central and Hudson River railroad 44th annual report for 1912. Ry Age 54:464-8 Mr 7 '13

New York Central electric locomotives. *il* Eng M 45:735-7 Ag '13

- New York Central & Hudson River R. R.—Cont.**
 New York Central lines steel coaches. il diag plans Am Eng 57:89-95 F '13; Ry Age 54:326-8 F 21 '13
 New York commission reduced suburban fares. Ry Age 54:295-6 F 11 '13
 Pennsylvania and the New York Central: comparison of revenues and expenses. map Ry Age 54:412-5 Mr 7 '13
 Reasons for and the advantages of the New York Central-Lake Shore consolidation. Ry Age 55:41-3 Jl 11 '13
 Third and fourth track construction; geological and traffic conditions created unusual problems on New York Central between Albany and New York. il Ry Age 54:505-7 Mr 14 '13
- New York connecting railroad**
 Bridges, viaducts and embankment work of the New York connecting railroad. il map plans Eng Rec 68:79-81 Jl 19 '13
- New York conservation commission**
 New York hydroelectric development. R. P. Bolton. Elec W 61:786-7 Ap 12 '13
 New York hydroelectric plans. A. Williams. Elec W 61:711-2 Ap 5 '13
 New York state hydroelectric scheme. maps Elec W 61:33-6 Ja 4 '13
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- New York electric railway association**
 Quarterly meeting, Lake George, N. Y., March 6-7, 1913. Elec Ry J 41:420-6 Mr 8 '13
 31st annual meeting, Brighton Beach, June, 1913. Elec Ry J 41:1142-7 Je 28 '13
- New York electrical society**
 Meeting, Feb. 17, 1913. Elec W 61:387 F 22 '13
- New York, New Haven & Hartford railroad**
 Aftermath of the New Haven wreck. Ry & Eng R 53:874-5 S 13 '13
 Apportioning the responsibility for the New Haven wreck. Sci Am 109:254 O 4 '13
 Competition for the New York, New Haven and Hartford railroad company's automatic stop. Sci Am 109:50 Jl 19 '13
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 Hearing concerning protection of employees on New Haven. Elec Ry J 42:459 S 20 '13
 Interstate commerce commission on the Stamford wreck. Sci Am 109:46 Jl 19 '13
 Interstate commerce commission report on the New Haven system. Ry & Eng R 53:674-5 Jl 12 '13
 Interstate commerce commission's report on the New Haven and the Boston & Maine. Ry Age 55:80-1 Jl 18 '13
 Investigation by Interstate commerce commission. Ry & Eng R 53:382-3 Ap 26 '13
 Latest and worst New Haven railway disaster. il Eng N 70:520-3 S 11 '13
 New Haven collision of Sept. 2, 1913; abstract of report of the Interstate commerce commission. Ry & Eng R 53:913-7 S 27 '13
 New Haven officers' salutatory. Ry Age 55:565-6 S 26 '13
 New Haven railroad financing. Eng N 69:968-9 My 8 '13
 New set of rules promulgated Sept. 14, 1913. Ry & Eng R 53:889 S 20 '13
 New York commission reduced suburban fares. Ry Age 54:295-6 F 14 '13
 North Haven collision. Ry Age 55:442-3, 461-7, 619-22 S 12, O 3 '13
 Pres. Howard Elliott on the situation and needs of the New Haven road. Ry & Eng R 53:926-7 O 4 '13
 Reaping the whirlwind. Sci Am 109:206 S 13 '13
 Record of wrecks occurring in last 27 months. Ry & Eng R 53:851 S 6 '13
 Revenues and expenses. map Ry Age 55:944-6 N 21 '13
 Stamford collision. Ry Age 54:1608 Je 27 '13
 Train wrecks and hasty legislation. Ry & Eng R 53:846-7 S 6 '13
 Washington comment on New Haven wreck. Ry & Eng R 53:845 S 6 '13
- New York public service commissions**
 Engineer members for the New York public service commissions. Eng N 69:271-2 F 6 '13
 Safety measures adopted for First district of New York. Elec Ry J 41:821-2 My 3 '13; Same. Elec W 61:975-6 My 10 '13; Same. Eng N 69:1131-2 My 29 '13
- New York railroad club**
 Annual electrical night, March 20, 1913. Elec Ry J 41:586-8 Mr 29 '13
- New York railways association**
 16th annual report, 1912. Elec Ry J 41:164-5 Ja 25 '13
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 Completing one of the world's greatest engineering works. N. E. Whitford. Sci Am 108:377-9 Ap 26 '13
 Effect on commerce. Eng Rec 68:559-60 N 15 '13
 Hydraulic dredging on New York barge canal. E. Low. il plan Eng N 69:710-20 Ap 19 '13
 Operation of the Mohawk river bridge dams. D. A. Watt. il Eng N 70:282-9 Ag 14 '13
 Present stage of construction on the New York state barge canal. E. Low. Eng N 70:561 S 13 '13
 Present status of the New York state barge canal. Eng N 69:181-2 Ja 23 '13
 Proposed water-power plans. Elec W 61:601-2 Mr 22 '13
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- Newspapers**
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 Business end of newspaper-making. M. Thorpe. Inland Ptr 51:234-7 My '13
 Early newspapers of southwestern Pennsylvania. J: S. Ritenour. Inland Ptr 51:427-30 Je '13
 How the Courier went to press. Inland Ptr 51:240 My '13

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- Newspaper and advertising costs. Inland Ptr 52: 273-7 N '13
 Newspaper of the future. R. Donald. Sci Am 109:274 O 4 '13
 Newspaper work. O. F. Byxbee. See monthly numbers of the Inland printer
 Proofrooms of the greater New York newspapers. C. A. Hartman. Inland Ptr 52: 269-15 N '13
 Sliding scale of advertising costs. J. C. Morrison. Inland Ptr 52:433-6 D '13
 Starting the Jonesville Jottings. H. Pressfield. Inland Ptr 51:677-9 Ag '13
See also Advertising; House organs; Journalism; News writers' unions; Trade papers

Newspapers. Municipal

- New municipal newspaper in Los Angeles. Munic Eng 44:147 F '13

Niagara (flagship)

- Raising the United States brig Niagara. W. L. Morrison and A. G. Kessler. Il Sci Am 108:580 Je 28 '13

Niagara falls

- Hydroelectric developments at Niagara falls. A. F. Ganz. Stevens Ind 30:79-92 Ap '13
 New York hydro-electric development and Niagara Falls. Met & Chem Eng 11:370-1 JI '13
 Niagara power for the International railway company. diag Elec Ry J 42:420-2 S 13 '13

Niagara river

- Control and regulation of Niagara river. Elec W 61:235 F 1 '13; Same. Eng Rec 67:sup 42 F 1 '13
 Pollution of Niagara river. Eng Rec 68:373-4 O 4 '13
 Report on weir in the Niagara river. map Eng Rec 68:206-8 Ag 23 '13

Nickel

- Determination of nickel and cobalt. R. L. Hallett. Eng & Min J 95:857-8 Ap 26 '13
 Determination of nickel by the use of dimethylglyoxime. P. S. Brown. Metal Ind n s 11:345-6 Ag '13
 Determination of nickel with dimethylglyoxime. Eng & Min J 96:1176 D 20 '13
 Nickel developments at Sudbury. Eng & Min J 96:205-6 Ag 2 '13
 Rapid determination of nickel in steel. Iron Age 52:399 Ag 21 '13
 Sudbury nickel-copper industry. R. E. Hore. Il Colliery 33:383-5 F '13
 Sudbury nickel district in 1912. Eng & Min J 95:64 Ja 11 '13
 Welding nickel. Il Sci Am S 76:256 O 18 '13

Nickel-plating

- Application of chemistry in the plating room. E. P. Later. Foundry 41:243-5 Je '13
 Electrodeposition of nickel. O. P. Watts. Metal Ind n s 11:261-2, 293-4, 334-6, 380-1 Je-S '13
 Equipment and management of nickel baths. S. W. Rowsbar. Foundry 41:16-7, 59-60, 105-6 Ja-Mr '13
 Filtering, agitating and heating of nickel plating solutions. F. W. Hobbs. diag Metal Ind n s 11:344 Ag '13
 Nickel plating. H. J. Ter Doest. Metal Ind n s 11:213-4 My '13
 Nickel-plating difficulties. Foundry 41:441-2 O '13
 Plating and refinishing railroad locomotive headlight reflectors in nickel. C. H. Proctor. Metal Ind n s 11:201-2 My '13
 Practical nickel solution for plating die castings. C. H. Proctor. Il Metal Ind n s 11: 11-2 Ja '13

Nickel steel

- Tests of large structural compression members. Eng Rec 67:227 Mr 1 '13
 Tests of two large nickel steel columns. H. W. Hodge. Il plan Eng Rec 67:234-5 Mr 1 '13

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- Sketch. F. J. Trezise. por Inland Ptr 50:545-8 Ja '13

Nineteen hundred and twelve

- Retrospect of the year 1912. Sci Am 108:2 Ja 4 '13

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- Separation of niobium and tantalum. Eng & Min J 95:1250 Je 21 '13

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- Determination of nitrates by ferrous sulphate. Eng & Min J 96:504 S 13 '13

Nitric acid

- Ostwald process for making nitric acid from ammonia. plans Met & Chem Eng 11:438-42 Ag '13; Same. Sci Am S 76:162-3 S 13 '13
 Ostwald process for making nitric acid from ammonia and the production of ammonia from calcium cyanamid. Met & Chem Eng 11:476 S '13

Nitrogen

- Chemistry of the soil nitrogen. S. L. Jodidi. bibliog J Fr Inst 175:483-95 My '13
 Fixation of nitrogen. Sci Am S 76:379 D 13 '13
 Nitrogen, its influence in steel. Met & Chem Eng 11:121-2 Mr '13
 Production of synthetic ammonia: the reduction of atmospheric nitrogen by catalysis. F. Haber and R. Le Rossignol. Il Sci Am S 76:53-9 JI 26 '13
 Recent improvements in the use of the electric furnace. Il Sci Am 109:84-5 Ag 2 '13
 Nitrogen-filled lamps. See Electric lamps, Tungsten

Nodules (ore)

- Use of nodulized ore in the blast furnace. R. H. Lee. Am Inst Min E Bul 82:2515-22 O '13; Discussion. 84:2864-9 D '13

Noise

- Noise and factory efficiency. Sci Am S 76: 189 S 20 '13

Non-conductors. See Dielectrics; Insulation**North Carolina****Industries and resources**

- Pyrophyllite in North Carolina. C. Hafer. Il Eng & Min J 96:623-5 O 4 '13

North star mines company

- Annual report for 1912. Eng & Min J 95: 934 My 10 '13

Northern Ohio traction & light company, Akron

- Annual report, 1912. Elec Ry J 41:269 F 8 '13

Northern Pacific railway

- Locomotive terminals and repair facilities in Washington. Il plans Ry & Eng R 53: 519-22 Je 7 '13

Northwest electric light and power association

- 6th annual convention, Seattle, Wash., Sept., 1913. Elec W 62:523-4 S 13 '13

Northwestern cedarmen's association

- Seventeenth annual meeting at Duluth, 1913. Elec W 61:180 Ja 25 '13

Northwestern Pacific railroad

- Extension closing the 100-mile gap between San Francisco and Eureka. Il map Eng Rec 68:664-5 D 13 '13

Notation, Engineering. See Engineering notation**Nurses and nursing**

- Interest in employees beyond the works. Iron Age 91:834-5 Ap 3 '13

- Trained nurse in welfare work. Iron Tr R 52:915-6 Ap 17 '13

- Nut planing machine. Sextuple. R. Grimshaw. diag Mach 20:307 D '13

Nuts (machinery). See Bolts and nuts**O****Oak**

- Experiments in the preservative treatment of red-oak and hard-maple crossties. F. M. Bond. Il U S Forest Serv Bul 126:9-92 '13

- Harvesting tan bark. S. J. Record. Il Sci Am S 75:409 Je 28 '13

Oakland, California

Municipal quay wall. T. E. Risley. map plan
Eng N 69:304-6 F 13 '13

Harbor

Hydrographic surveying; Oakland harbor development. F. W. Johnson. il map Eng N 70:362-4 Ag 21 '13

Oakland, Antioch & Eastern Ry.

Description of electric interurban railway in California. il Ry & Eng R 53:995-6 O 25 '13

Oakley dam, Idaho

Design and construction of Oakley dam. il Eng Rec 67:32-4 Ja 11 '13

Occupations

See also Business; Vocational training

Diseases and hygiene

Accidents and diseases of ironworkers. F. Roepke. Ind Eng 13:52-3 F '13

Hygiene for draftsmen. F. G. Higbee. Am Mach 38:823-4 My 15 '13

See also Dust; Factory sanitation; Lead poisoning; Mine sanitation; Safety devices

Occupations. Choice of

Industrial need of technically trained men. A. E. Quincy. Sci Am 109:42 JI 12 '13

Printing-office as a vocational school. W. H. Wright. Inland Ptr 51:221-2 My '13

Occupations. Dangerous

Accidents and diseases of ironworkers. F. Roepke. Ind Eng 13:52-3 F '13

Relative vocational hazards. H. Davis. Colliery 33:185-6 Ap '13

See also Accidents, Industrial; Mine accidents; Occupations—Diseases and hygiene; Railroads—Accidents; Safety devices; Workmen's compensation

Ocean

Age of the ocean as determined by its salt contents. F. W. Clarke. Sci Am S 75:306 My 17 '13

Seeing under water. il Sci Am 108:469-70 My 24 '13

See also Hydrographic surveying; Icebergs; Navigation; Ocean temperature; Sea walls; Tide power

Ocean temperature

Autograph of an iceberg. L. E. Browne. il Sci Am 109:490 D 27 '13

Ocean temperatures along the west coast of North America. Sci Am S 75:170-1 Mr 15 '13

Ocean terminals. See Ports; Terminals**Ocean travel**

See also Fires at sea; Safety at sea; Steamboats

Office buildings

Fidelity trust building extension. Eng Rec 67:411-2 Ap 12 '13

Guaranty trust company's new building. New York city. E. W. Stern. il plans Eng N 70:258-62 Ag 7 '13

Heating and ventilation of office buildings. J. Graham. Dom Eng 63:276-9; 64:2-4 Je 7, JI 5 '13

Leader-News building, Cleveland. il Arch Rec 33:591-17 Je '13

Lentz engines in Baltimore office building. W. O. Rogers. il Power 38:556-8 O 21 '13

Method of checking economical height of office buildings. D. K. Boyd. Eng Rec 68:589 N 22 '13

Method of checking economical height of office buildings. C. T. Coley. Eng Rec 68:21-2 JI 5 '13; Same. Stevens Ind 30:314-56 O '13

Method of checking economical height of office buildings. G. W. Wolcott. Eng Rec 68:111 JI 26 '13

Office and apartments of a Philadelphia architect; Wilson Eyre. R. Caye. il Arch Rec 34:78-88 JI '13

Office building of the Consolidated gas co., New York. il plans Eng N 70:1275-83 D 25 '13

Plumbing and heating in L. C. Smith building, Seattle. Dom Eng 65:344-5 D 13 '13

Power plant of the Madison avenue building. N. Y. T. Wilson. il plan Power 38:2-4 JI 1 '13

Power plant of the Otis building, Chicago. A. R. Maujer. il plan Power 38:42-8 JI 8 '13

Windbracing without diagonals for steel-frame office-buildings. R. Fleming. Eng N 69:492-6 Mr 13 '13

Wiring of the Bankers' trust building. N. Y. il Elec W 61:1407-19 Je 28 '13

See also Woolworth building

Office management

Office efficiency as it affects the men. L. O. Fisher. J Account 16:11-21 JI '13

Ohio**Law**

Ohio compensation law declared defective. Iron Age 41:371-5 F 6 '13

Proposed Ohio state building code. Eng Rec 67:83-4 Ja 18 '13

Sanitary affairs

Ohio floods and the related work of Ohio state board of health. W. H. Dittoe. Eng N 69:696-7 Ap 3 '13

State board of health

Ohio floods and related work of Ohio state board of health. W. H. Dittoe. Eng N 69:696-7 Ap 3 '13

Ohio electric light association

19th annual meeting at Cedar Point, Ohio, July, 1913. Elec W 62:117-9, 232-4 JI 19, Ag 2 '13

Ohio electric railway

Effect of the flood on the Ohio electric railway. il Elec Ry J 41:724-5 Ap 19 '13

Ohio master plumbers' association

22d annual convention at Toledo, Feb., 1913. Dom Eng 62:247-51 Mr 1 '13

Ohio river

Drainage area and population of the Ohio river valley and pollution of the Ohio river. A. H. Horton. Eng N 69:186-7 Ja 23 '13

Ohio river locks at Louisville. il plans Eng N 70:1238-41 D 18 '13

Ohio river valley

Drainage area and population of the Ohio river valley and pollution of the Ohio river. A. H. Horton. Eng N 69:186-7 Ja 23 '13

Ohio society of engineers

27th annual meeting, Springfield, Ohio, May, 1913. Elec W 61:1130-1 My 31 '13

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Burners for oil fuel. R. T. Strohm. diags Elec W 62:342-3, 437-8 Ag 16, 30 '13

Burning crude oil. E. W. Babcock. diags Power 38:231-40 Ag 12 '13

Design of fuel-oil burner atomizing oil at high pressure with air under low pressure. plan Eng N 69:109 Ja 16 '13

Developments in oil fuel burning. E. H. Peabody. il Int Marine Eng 18:14-7, 60-4, 112-4 Ja-Mr '13; Same cond. Power 37:205-8, 244-6 F 11-18 '13; Same cond. Eng N 69:1000-2 My 15 '13

Installation of oil burners. R. T. Strohm. il Elec W 62:1120-2 N 29 '13

Mahr oil burner. il Ry Age (Mech ed) 87:624-5 N '13

Methods of spraying oil fuel. R. T. Strohm. diags Elec W 62:491-2 S 6 '13

Oil-burning furnaces. R. T. Strohm. diags Elec W 62:1048-9, 1068-70 N 15-22 '13

Stiltz fuel oil burner. diag Eng & Min J 95:232 Ja 25 '13

White mechanical system of burning fuel oil. diags Int Marine Eng 18:269 Je '13

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Chicago railways oil house and oil delivery car. plans Elec Ry J 41:548-9 Mr 22 '13

Oil drip-cups

Device for emptying oil drip-cups. R. W. Dickinson. diag Mach 19:51 S '12

- Oil engines.** See Gas and oil engines
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- Oil heaters**
Pumping and heating of oil fuel. R. T. Strohm. *diags Elec W 62:650-2 S 27 '13*
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- Oil piping.** Care of. L. Grandmontagne. *il Power 37:537-8 Ap 15 '13*
- Oil-piping layout for transformers using thin oil.** F. Buch. *plans Elec W 61:360-2 F 15 '13*
- Oil separators**
Garage men protest against separators: regulations of Municipal explosives commission. *plan Automobile 28:695 Mr 20 '13*
- Oil-spraying machine for track.** *diag Eng Rec 68:316 S 20 '13*
- Oil storage**
Chicago railways oil house and oil delivery car. *plans Elec Ry J 41:548-9 Mr 22 '13*
Core oil storage. *il Foundry 41:212 My '13*
Oil house and waste storage. C. S. Coe. *Ry Age 51:1149 My 23 '13*
Safety in the storage of oils and paints. J. W. Gibbons. *Ry Age 55:1181 D 19 '13*
Standard oil house. *Ry Age (Mech ed) 87: 310 Je '13*
Storage of oil fuel. R. T. Strohm. *diags Elec W 62:1277-9 D 20 '13*
- Oil switches.** See Electric transformers
- Oil testing**
Handling, sampling and testing of transformer oil. G. E. Armstrong. *Elec W 62: 1322-4 D 27 '13*
Testing oil at home. *il Automobile 28:355-6 Ja 30 '13*
Testing oils for sulphur. W. Pattern. *Power 37:626-7 My 6 '13*
- Oil wells.** See Petroleum
- Oils and fats**
Hardening fats by catalysis. *Sci Am 109:29 Jl 12 '13*
Hardening liquid fats by hydrogenation: solid products from oils. *Sci Am S 75:71 F 1 '13*
See also Linseed oil; Lubrication and lubricants; Petroleum
- Oklahoma**
Industries and resources
Oklahoma gypsum deposits and industry. L. C. Snider. *il map Eng & Min J 95:931-3 My 10 '13*
- Old age homes**
Colburn memorial home for the aged. New Rochelle, N. Y. A. E. Davis. *il plans Arch & Bldg 45:372-3 S '13*
- Old age pensions.** See Pensions
- Oleoresins**
Examination of the oleoresins of some western pines. A. W. Schorger. *il U S Forest Serv Bul 119:1-36 '13*
- Olympic (steamship)**
Reconstruction of the Olympic. *il Sci Am 108: 67 Ja 18 '13*
- Omaha, Nebraska**
Tornado, 1913
Omaha and Terre Haute tornadoes. *il Elec Ry J 41:638-9 Ap 5 '13*
Tornado of March 23. *il map Eng N 69:690-2 Ap 3 '13*
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Nobel prize winner. *per Sci Am 109:494 D 27 '13*
- Opacimeter**
Integrating opacimeter for stellar photography. J. Boyer. *il Sci Am 109:124 Ag 16 '13*
- Open air schools**
Architecture of open air schools. J. R. Van Pelt. *Heat & Ven 10:41-2 S '13*
- Open hearth process**
Blair removal slag pocket. *plan Iron Tr R 52:211-2 Ja 16 '13*
Case of the Tadhof tilting furnace. *Iron Age 92:568-9 S 11 '13*
Heat balance of the open hearth. S. Cornell. *Mot & Chem Eng 11:257-65 My '13*
Manufacture of open-hearth steel. K. Scaver. *il plan Iron Tr R 52:1126-30, 1171-6, 1239-11 My 15-29; 1299-1302, 1355-7 Je 5-12 '13*
New open hearth furnace features. *plan Iron Age 91:202 Ja 16 '13*
Open-hearth furnaces at Midland, Pa. *il plan map Iron Age 92:1025-32 N 6 '13*
Open-hearth steel furnace progress. H. F. Miller, jr. *diags Foundry 11:511-8 D '13*
Two new tilting furnaces at the open-hearth plant of the Lackawanna steel company. Buffalo. *il plans Iron Age 92:550-3 S 11 '13; Iron Tr R 53:477-80 S 11 '13*
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- Optical illusions**
Optical illusions; trust not your eye. *il Sci Am 108:227 Mr 8 '13*
Optical phenomena seen from balloons. C. F. Talman. *il Sci Am 108:542 Je 14 '13*
Seeing under water. *il Sci Am 108:469-70 My 24 '13*
- Optical instruments**
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- Orders for work.** Information with. C. H. Norton. *Am Mach 38:788 My 8 '13*
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Orders according to Julien Maclerc. J. J. Klaber. *il Arch Rec 33:492-500 Je '13*
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- Ore bins**
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New type of stock bin. *il Iron Tr R 53:734 O 23 '13*
Ore stock bin installation. *il Iron Age 92: 908 O 23 '13*
Reinforced-concrete tailings bin. *plan Eng & Min J 96:395-6 Ag 16 '13*
- Ore deposits**
Extraterritorial rights to quartz veins. *Eng & Min J 96:537-43 S 20 '13*
Genesis of the Butte ores. *Eng & Min J 96: 787-9 S 27 '13*
Influence of flat dike on ore formation. E. A. Colburn, jr. *diag Eng & Min J 96:599-600 S 27 '13*
Mineral associations at Butte. Mont. D. C. Bard and M. H. Gidel. *Am Inst Min E Bul 89:1627-31 Ag '13*
Ore deposits at Butte. Mont. R. H. Sales. *diags Am Inst Min E Bul 89:1523-1626 Ag '13*
Ore occurrence at Prince Consolidated mine at Pioche, Nevada. E. R. Zalinski. *il Eng & Min J 95:809-12 Ap 19 '13*
Relation of outcrops to ore at Cananea. M. J. Elshing. *Eng & Min J 95:357-62 F 15 '13*
Replacement deposits in the Ajax mine, Colo. E. A. Colburn, jr. *plan Eng & Min J 95: 739-41 Ap 12 '13*
Searching for ore shoots in veins. *Eng & Min J 95:911-4 My 10 '13*
Southern Cross mine, Georgetown, Mont. P. Billingsley. *map Am Inst Min E Bul 81: 2289-97 S '13*
Sudbury, Cobalt and Porcupine geology. W. G. Miller and C. W. Knight. *il map Eng & Min J 95:1129-33 Je 7 '13*
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- Ore docks**
Handling ore from the Cuyuna range. *il plans map Iron Tr R 53:729-33 O 23 '13*
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- Handling material in Lake Superior rock houses. Eng & Min J 95:247-8 My 10 '13
Hulet iron ore unloader. il Eng & Min J 95: 882-3 My 3 '13
Iron ore loading plant in Norway near Narvik. il Iron Age 92:849 O 16 '13
Lines of the U. S. steel corporation from the Minnesota mines to the Pittsburgh mills. il map Ry Age 55:486-92 S 19 '13
Motor truck ore haulage in Arizona. C. L. Edholm. il Eng & Min J 95:1177-8 Je 14 '13
Mucking in a flat vein. diag Eng & Min J 96: 214 Ag 2 '13
Reinforced-concrete ore docks. il Eng N 69: 8-15 Ja 2 '13
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Rock house of Quincy mining co. T. C. Desoller. plan Mines & Min 33:325-7 Ja '13
Steel and concrete ore dock at Presque Isle, Mich. il Iron Tr R 52:207-9 Ja 16 '13

Ore sampling

- Calculation of extraction in cyanidation. H. A. Megraw. Eng & Min J 96:441-4 S 6 '13
Calculation of extraction in cyanidation. G. Simpson, jr. Eng & Min J 96:1230 D 27 '13
Notes on diamond drill sampling. H. L. Botsford. Eng & Min J 95:19-20 Ja 4 '13
Notes on mine sampling. Eng & Min J 95: 513-6 Mr 8 '13
Ore sampling without machinery. J. Scobey. il Met & Chem Eng 11:83-6 F '13
Salted mines. G. L. Sheldon. Eng & Min J 96:1113-4 D 13 '13
School laboratory-work: sampling of an ore containing coarse gold. C. E. Locke. Am Inst Min E Bul 75:469-73 Mr '13

Ore testing

- Principles and methods of ore testing. I. F. Laucks. Eng & Min J 96:51-5 J1 12 '13
See also Assaying; Ore sampling

Ore transportation

- Mining magnetite in Sweden: electrification of ore road. A. S. Rice. il Iron Tr R 53: 953-60 N 27 '13

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Ore treatment

- Argo cyanide mill, Idaho Springs, Colo. S. L. Goodale. il plan Eng & Min J 96:385-9 Ag 30 '13
Battie regrinding plant, Redridge, Mich. A. H. Sawyer. diags Eng & Min J 95:521-2 Mr 8 '13
Battery ore feeder, Rio Plata mill. A. R. Kenner. il Eng & Min J 95:423 F 22 '13
Beneficiation of lake iron ores. D. E. Woodbridge. Eng & Min J 95:311-2 F 8 '13
Calculation of extraction in concentration. W. S. Welton. Eng & Min J 96:75-7 J1 12 '13
Canvas plant of the Federal lead company at Flat River, Mo. C. T. Rice. plans Eng & Min J 96:487-8 S 13 '13
Coleraine iron ore washing plant. J. U. Sebenius. il plan Iron Age 92:452-5, 479-80 Ag 28 '13
Concentrating high-grade fines by hand. A. L. Flagg. Eng & Min J 96:69-70 J1 12 '13
Concentrating launder. diag Eng & Min J 95: 1294 Je 28 '13
Concentration of cinnabar ores. G. V. Northey. il Eng & Min J 96:783-4 O 25 '13
Concentration of iron-ores: Discussion of the paper of N. V. Hansell. F. L. Grammer; R. H. Richards. Am Inst Min E Bul 77: 887-91 My '13
Concentration of low-grade iron ores. il plan Eng & Min J 95:1016-8 My 17 '13
Concentration of slimes at Anaconda, Mont. R. Hayden. il diags Am Inst Min E Bul 80:1443-67 Ag '13; Discussion. 83:2740-1 N '13
Concentration of telluride ores. H. E. Wood. Eng & Min J 95:885-6 My 3 '13
Continuous decantation with Dorr thickeners. J. Simmons. diag Eng & Min J 95:627-8 Mr 22 '13
Crushing and classification at Homestake. Eng & Min J 95:617-8 Mr 22 '13
Doe Run system of handling concentrates. plan Eng & Min J 95:231-2 Ja 25 '13
Dry concentration and separation of minerals; the Plumb pneumatic jig. il Met & Chem Eng 11:722-4 D '13
Electrostatic separation of Barstow mine, Ouray, Colo. concentrate. C. R. Wilfley. plan Eng & Min J 96:249-50 Ag 9 '13
Evolution of methods of handling slime. H. N. Spicer. il Met & Chem Eng 11:181-3, 239-41, 315-9, 408-12, 451-3, 481-4 Ap-S '13
Evolution of the round table for the treatment of metalliferous slimes. T. Simons. il diags Am Inst Min E Bul 79:1173-95 J1 '13
Grading analyses and their application to cyanidation. Eng & Min J 95:1044-6 My 24 '13
Great Falls system of concentration. A. E. Wiggins. diag Am Inst Min E Bul 80:1891-30 Ag '13
Hall desulphurizing process. D. M. Lidde!! Eng & Min J 96:50 J1 12 '13
Hall ore desulphurizing process. W. A. Hall. Eng & Min J 96:35-6 J1 5 '13
Hydrometallurgy and chlorination: answer to Dr. Chauvenet. J. L. Malm. Met & Chem Eng 11:669 D '13
Igneous concentration of zinc ores. F. L. Clerc. diag Eng & Min J 95:222-6 Ja 25 '13
Launder data, Cananea consolidated copper co. A. T. Tye and T. Counselman. Eng & Min J 95:375 F 15 '13
Metallurgy of Sudbury copper-nickel ores. Met & Chem Eng 11:629-31 N '13
Metallurgy of the Homestake ore. A. J. Clark and W. J. Sharwood. il map Eng & Min J 95:161-6, 215-9 Ja 18-25 '13
Mexican method of retorting amalgam. A. M. Merton. diag Eng & Min J 96:263-4 Ag 9 '13
Mill physiology. S. L. Goodale. Met & Chem Eng 11:556-8 O '13
Milling in southeastern Missouri. C. T. Rice. il diags Eng & Min J 95:1229-32, 1283-8; 96: 7-14, 57-64 Je 21-J1 12 '13
Minerals separation vs. James M. Hyde. Eng & Min J 96:317-8 Ag 16 '13
Motherlode mill, Salmo, B. C. C. E. Rodgers. il plan Eng & Min J 96:529-32 S 20 '13
No. 2 unit of the mill of the Bunker Hill & Sullivan mining & concentrating co. R. S. Handy. Am Inst Min E Bul 73:65-72 Ja '13
Ore bedding by the Tennessee copper co.: making acid from smelting-works gases. H. F. Wierum. Eng & Min J 96:435-7 S 6 '13
Ore-dressing improvements. R. H. Richards. Am Inst Min E Bul 81:2299-2303 S '13
Ore-treatment at Republic, Wash. F. A. Thomson. Am Inst Min E Bul 73:51-64 Ja '13
Phosphate ore dressing. S. L. Lloyd. il Mines & Min 33:333-4 Ja '13
Precipitation of copper from the mine waters of the Butte district. J. C. Febles. il Am Inst Min E Bul 79:1267-83 J1 '13
Preparing Cuban ore for blast furnace use. R. B. Gerhardt. Iron Tr R 52:364-6 F 6 '13
Recent Cottrell electric precipitation results. L. Bradley. Eng & Min J 96:247-8 Ag 9 '13
Reinforced-concrete launder. C. T. Rice. diags Eng & Min J 96:22-4 J1 5 '13
Roasting and leaching tailings at Anaconda, Mont. F. Laist. il plans Am Inst Min E Bul 79:1147-62 J1 '13; Discussion. 83:2709-13 N '13
Role of certain metallic minerals in precipitating silver and gold. C. Palmer and E. S. Eastin. Am Inst Min E Bul 77:843-57 My '13
San Poll mill, Republic, Wash. E. C. Morse. Am Inst Min E Bul 73:79-84 Ja '13
Single jig mills in Wisconsin zinc district. H. A. Roessler. il Eng & Min J 95:785-6 Ap 19 '13
Slater lixiviation process. Eng & Min J 96: 595 S 27 '13
Slater lixiviation process. H. B. Slater. Eng & Min J 96:1133-4 D 13 '13

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- Solution meter at the Belmont mill. C. S. McKenzie. diags Eng & Min J 96:165-6 JI 26 '13
 Sorting belts used in Rand breaking plants. Eng & Min J 95:21-2 Ja 1 '13
 Types of Rand sorting tables. diags Eng & Min J 95:279-80 F 1 '13
Woodbury slime classifier. E. T. Wright. plan Colliery 33:397-8 F '13
 Zinc-dust precipitation at Cerro Prieto, Sonora, Mexico. H. S. Munroe. il Eng & Min J 95:1085-6 My 31 '13

See also Briquets (iron); Centrifugal machines; Classifiers; Copper metallurgy; Cyanide process; Electrometallurgy; Flotation process; Gold metallurgy; Gold milling; Iron metallurgy; Lead metallurgy; Magnetic separation of ores; Metallurgy; Screening; Smelting; Stamp mills; Tin Metallurgy; Zinc metallurgy

Oregon electric railway

- Line with observation and sleeping cars between Portland and Eugene. il map Elec Ry J 41:1050-6 Je 14 '13

Oregon electrical contractors' association

- Report of 1st annual convention, 1912. Elec W 61:32 Ja 4 '13

Oregon shore line railroad

- Improvements. il plans Ry & Eng R 53:239-45 Mr 15 '13

Ores

- Ores amenable to cyanidation. H. A. Megraw. Eng & Min J 96:629-33 O 4 '13
 Railroads change ore rates. Iron Tr R 53:351-3 Ag 21 '13

See also Assaying; Copper ores; Geology. Economic; Iron ores; Metallurgy; Metals; Mineralogy; Mines and mineral resources; Ore deposits; Ore treatment

Organization, Engineering. See Engineering organization**Organization in industry**

- Force organization in the railroad repair shop. E. Cordal. Eng M 45:538-45 JI '13
 Organization of large commercial and industrial establishments. B. Orenstein. Eng M 44:588-96 Ja '13

See also Engineering organization; Railroads—Management

Oriental consolidated mining co., Korea

- Report. Eng & Min J 96:1025-6 N 29 '13

Oscillograms

- Oscillograph study of corona. E. Bennett. il Am Inst E E Pro 32:1472-94 Je '13; Discussion. 32:2300-15 D '13

Osmond, Floris, 1849-1912

- Biographical notice. A. Sauveur. bibliog per Am Inst Min E Bul 74:309-18 F '13

Ostwald process. See Nitric acid**Ottawa, Ontario****Railroads**

- Grand Trunk terminal at Ottawa, Ont. il plan Ry Age 54:435-49 Mr 7 '13

Water supply

- Report of British experts. Eng N 70:1012-4 N 29 '13

Ottawa river

- Reservoir regulation for the Ottawa river. E. Low. Eng N 69:25 Ja 2 '13

Overhead expense

- Cause of the small profit in the plumbing business. E. C. Cole. Dom Eng 63:306-7 Je 14 '13

- Overhead cost in the plumbing business. R. H. Pilug-Felder. Dom Eng 64:332-3 S 20 '13

- Overhead expense distribution; with discussion. R. R. Keely. Am Soc M E J 35:983-96 Je '13; Same. Ind Eng 13:301-4 JI '13; Same. Iron Tr R 53:337-8 Ag 21 '13; Same cond. Iron Age 92: 298-9 Ag 7 '13

- What should the selling price be? R. H. Pilug-Felder. il Dom Eng 65:338-49 D 13 '13

- Oxidized finish on gray iron. Foundry 41:104-5 Mr '13

Oxyacetylene flame

- Miscellaneous steel cutting at the Brooklyn navy yard. Ry & Eng R 53:106 My 3 '13
 Miscellaneous steel cutting by gas in the U. S. navy. Iron Age 91:119 My 8 '13

- Oxyacetylene boiler welding. H. Cave. il Power 28:310-2 D 30 '13

- Oxy-acetylene welding and cutting in European commercial and railway repair establishments. H. W. Jacobs. il Ry Age 54: 475-8 Mr 14 '13

- Oxyacetylene welding and cutting operations. il Eng N 69:1062-3 My 22 '13

- Scrapping locomotive boilers with the oxy-acetylene torch. P. Fleiss. il Ry Age (Mech ed) 87:502-3 N '13

- Use of the oxy-acetylene torch in foundries. H. C. Estep. il Foundry 41:443-50 O '13

Oxygen

- Electrolytic production of oxygen. Sci Am 109:363 N 8 '13

- New industrial process for manufacturing oxygen. Sci Am 108:66 Ja 18 '13

- Oxygen in blast-furnace practice. G. Trancster. Iron Age 92:569 S 11 '13; Same. Sci Am S 76:345 N 29 '13; Same cond. Iron Tr R 53:853-4 N 6 '13

- Oxygen production in the United States. Iron Tr R 53:1010 D 4 '13

Oxygen, Compressed

- Valve safeguarding the feed of oxygen from high-compression bottles. diags Automobile 29:506-7 S 18 '13

Ozone

- Application of ozone to water purification. Met & Chem Eng 11:373-4 JI '13

- Bactericidal, deodorizing and physiologic action of ozone. Eng N 70:1096-8, 1319-20 N 27, D 25 '13

- Ozone. A. Vosnaer. Met & Chem Eng 11:705-8 D '13

- Ozone as a rapid paint dryer. Sci Am 108:103 Ja 25 '13

- Ozone as an aid to good health. il Sci Am 109:11 JI 5 '13

- Ozone in ventilation. M. W. Franklin. Heat & Ven 10:30-5 O; 13-8 N '13

- Ozone water-purifying apparatus. il Elec W 62:1231-2 D 13 '13

- Purification of air and water by means of ozone. J. C. Olsen. Heat & Ven 10:35-7 D '13

- Purification of air with ozone. A. M. Buswell. Sci Am S 76:352 N 29 '13

- Reports discredit ozone as room disinfectant and deodorizer. Eng Rec 68:645-6 D 6 '13

- Water purification by ozone in large office building. il Elec W 62:1345 D 27 '13

- Water purifications by ozone in European plants. R. Spaulding. il Eng M 45:725-8 Ag '13

- Water sterilizing by means of ozone. J. P. Schroeter. plan Elec W 61:898-9 Ap 26 '13

Ozone machines

- Ozone machines and public health. Elec W 62:393 N 15 '13

- Ozone machines and public health. C. P. Steinmetz. Elec W 62:1033-4 N 29 '13

- Ozone machines and public health. W. H. Thompson. Elec W 62:1333 D 27 '13

P**Pacific claim agents' association**

- 5th annual convention, Vancouver, July, 1913; report and papers. Elec Ry J 42:103-7, 136-40 JI 19-26 '13

Pacific coast electric railway association

- Organization meeting, San Francisco, 1913. Elec Ry J 41:641 Ap 5 '13

Pack, Charles Lathrop, 1857-

- President of the National conservation congress. por Sci Am S 75:11 Ja 4 '13

Packard motor car company, Detroit

- Description of plant. O. J. Abell. il Iron Age 91:1347-51, 1415-21, 1473-6 Je 5-19 '13

- Inspection of materials and finished product. E. F. Roberts. Ind Eng 13:418-21 O '13; Same. Iron Age 92:158-60 JI 17 '13

Packing

- Comparison of piston-rod packing. W. E. Sanders. Power 38:280-1 Ag 19 '13
 Condenser packing tool. *il* Int Marine Eng 18: 136-7 Mr '13
 Grapho-metal packing. *il* Ry Age 54:336 F 21 '13
 Pneumatic cylinder-packing leathers. F. W. Bentley, jr. *il* diags Power 38:498-9 O 7 '13
 Some experiences in packing flange joints. W. H. Wakeman. *il* Dom Eng 62:8-9 Ja 4 '13

Packing boxes. See Box making**Packing for shipment**

- Packing merchandise for the tropics. Am Ind 14:33 Ag '13

Packing houses

- Electricity in the packing industry. W. D. Bearce. *il* Elec W 61:466-70 Mr 1 '13
See also Packing industry

Packing industry

- Frozen meat industry of New Zealand. A. M. Wright. Sci Am S 76:211 O 4 '13
See also Packing houses

Paint

- Basic pigments and metal corrosion. Iron Age 52:342-3 Ag 14 '13
 Influence of basic pigments in protecting metals from corrosion. H. A. Gardner. Eng Rec 68:93-4 Jl 26 '13
 Influence of basicity on protective value of paints for metals. Eng Rec 68:87 Jl 26 '13
 Master painters' association on finishing steel passenger train cars. paint protection for steel equipment and paint tests. Ry Age 55:495-8 S 19 '13
 New departure in red lead. A. H. Sabín. Ry Age 55:984 N 21 '13
 Notes on the formation and inhibition of mildew in paints. H. A. Gardner. *il* J Fr Inst 175:59-64 Ja '13
 Ozone as a rapid paint dryer. Sci Am 108: 103 Ja 25 '13
 Paint efficiency and paint purity. G. Auchy. Iron Age 91:438 F 13 '13
 Paint materials. A. S. Jennings. Eng M 45: 252-5 My '13
 Practical test of metal-protective paints. L. H. McFadden. *il* Eng Rec 67:656-7 Je 14 '13
 Selecting and specifying protective coats for iron and steel. J. C. Smith. Eng M 44:334-9 D '12
 Test of red-lead priming paints. C. M. Chapman. *il* Eng N 69:948-51 My 8 '13
 Tests of a fire resisting paint. *il* Ry Age 55: 293-4 Ag 15 '13
 Tests of bridge paint. J. S. Rice; A. B. Phelps. Ry Age 55:1179-80 D 19 '13
See also Corrosion and anti-corrosives; Metal protection; Painting, Structural; Pigments; White lead

Paint brushes

- Paint brushes for steel equipment. Ry Age (Mech ed) 87:542-3 O '13

Paint shops

- Detroit united railways paint shop. *il* plans Elec Ry J 41:668-74 Ap 12 '13
 Paint shop at Sedalia. *il* Ry Age (Mech ed) 87:483-4 S '13
 Reinforced-concrete details of a large paint shop: Detroit united railways. *il* plan Eng Rec 68:75 Jl 19 '13
 Safety first. Ry Age (Mech ed) 87:513-4 O '13

Painting, Structural

- Baked enamel for painting steel cars. *il* Elec Ry J 41:686-7 Ap 12 '13
 Baked enamel painting on the cars of Hudson & Manhattan railroad. *il* Elec Ry J 41:146-9 Ja 25 '13
 Economy in locomotive painting. Ry Age (Mech ed) 87:511-2 O '13
 Estimating amount of red lead paint for steel work. C. M. Chapman. Eng Rec 67: 191 F 15 '13
 Finishing steel passenger cars. Ry Age (Mech ed) 87:539-41 O '13

- Master painters' association on finishing steel passenger train cars. paint protection for steel equipment and paint tests. Ry Age 55:495-8 S 19 '13

- Methods in painting concrete surfaces. L. P. Nemzek. Concrete Cem 2:232-3 My '13

- Paint protection for steel equipment. Ry Age (Mech ed) 87:544 O '13

- Painting cars with baking enamel. Elec Ry J 41:141 Ja 25 '13

- Painting steel passenger cars. C. D. Young. *il* diag Am Soc M E J 35:823-33 My '13; Same cond. Ry Age 54:836-2 Ap 11 '13; Same cond. Am Eng 87:245-7 My '13; Same cond. Ry & Eng R 53:418-9 My 3 '13

- Preservation of iron and steel: tests to determine the best methods in painting. Iron Age 52:324-5 Ag 7 '13

- Protection of steel from corrosion. H. Williams. *il* Eng M 45:183-95 My '13

- Rapid painting of the automobile. Automobile 25:19 Jl 3 '13

- Selecting and specifying protective coats for iron and steel. J. C. Smith. Eng M 44:334-9 D '12

- Shop painting of steelwork. Eng N 69:166-7 Ja 23 '13

- Theory and practice of painting a modern steel passenger car. J. W. Lawrie. Sci Am S 76:230-1 O 11 '13

- See also* Bridge painting; Car painting; Corrosion and anti-corrosives; Lead painting; Paint brushes

Painting, Submarine

- Painting the wonders under the sea. C. M. Carroll. *il* Sci Am 108:179 F 22 '13

Paints. See Paint**Paints, Protective.** See Painting, Structural**Palladium**

- Assay method for palladium and platinum. H. D. Greenwood. Eng & Min J 96:1175 D 20 '13

Panama**Boundaries**

- Survey of the boundary between Costa Rica and Panama. Eng Rec 67:361 Mr 29 '13

Panama-California exposition. See San Diego—Panama-California exposition**Panama canal**

- Ambrose channel as measured by the Panama canal. Sci Am 108:242-3 Mr 15 '13
 Architecture on the Panama canal—a suggestion. *il* Sci Am 108:136 F 8 '13
 Artistic character of Panama canal structures. Eng Rec 68:412-3 O 11 '13
 Blowing up of Gamboa dike; flooding Culobra cut with water from Gatun lake. *il* Sci Am 109:342-3 N 1 '13
 Bringing the sea to Miraflores locks. Sci Am 109:245 S 27 '13
 Center approach wall for the lower end of the Gatun locks, Panama canal. diags Eng N 69:1119-20 My 29 '13
 Chain fenders for the Panama canal: details of the hydraulically operated devices for bringing ships to rest. *il* plan Iron Age 92:294-6 Ag 7 '13
 Earthquakes and the Panama canal. D. F. Macdonald. *il* Sci Am 109:303-5 O 18 '13
 Electric transmission equipment, Panama canal. Ry & Eng R 53:842-3 S 6 '13
 Estimated and actual costs of construction at Panama. Eng Rec 67:86 Ja 25 '13
 Excavation at Panama. Ry & Eng R 53:190-1 Mr 1 '13
 Extracts from annual report of Isthmian canal commission. G. W. Goethals. Eng N 70: 1122-5 D 4 '13
 Goethals on the Panama canal. Sci Am 109: 424 D 6 '13
 Grouting process for preventing slides on the Panama canal. G. S. Rice. diag Eng N 69: 1181 Je 5 '13
 Hydraulic excavation on Panama canal slides. Eng N 69:1047 My 22 '13
 Illustrated record of progress; pictures. Eng M 44:354-61 D '12
 Is the Panama canal liable to damage by earthquakes? C. Davison. Sci Am 109:454 D 13 '13

Panama canal—Continued.

- Nature completes the Panama canal. *Sci Am* 109:2 JI 5 '13
 Oceans meet at Panama. *il Eng Rec* 68:477-8 O 25 '13
 Panama canal architecture. *Sci Am* 109:26 JI 12 '13
 Panama canal: some interesting mechanical features. F. D. Jones. *il map diags Mach* 19:571-9 Ap '13
 Planning for commerce via Panama canal. C. M. Pepper. *il Iron Age* 92:834-7 O 16 '13
 Progress on the Panama canal: summary of engineering features of report of G. W. Goethals. *Eng Rec* 68:603-7 N 29 '13
 Recent photographs of the Panama canal work. *il Eng N* 70:666-8 O 2 '13
 Recent views from the Panama canal. *il Sci Am* 108:432-3 My 10 '13
 River gravel on Panama canal construction. Ry & Eng R 53:776-7 Ag 16 '13
 Sea-level canal fallacies. *Sci Am* 109:122, 254, 259 Ag 16, O 4 '13
 Taming the Chagres river. *Sci Am* 109:222 S 20 '13
 Timber buffers for protecting vessels entering the Panama canal locks. *diags Eng N* 70:306-7 Ag 14 '13
 To beautify the Panama canal. *Sci Am* 109:314 O 25 '13
 Truth about the Culebra cut slides. A. S. Zinn. *diag Eng N* 70:406-8 Ag 28 '13
 Year's progress on the Panama canal, ending June, 1912. *Eng M* 44:407-12 D '12

Lighting

- Lighting the operating tunnels and machine rooms of the Panama canal locks. *plan Eng N* 69:977 My 8 '13
 Marine lighting equipment of the Panama canal. J. Pattison. *diags Eng N* 69:1057-9 My 22 '13

Locks

- Adjustment of devices at hinge, miter ends and sills of Panama canal locks gates to prevent leakage. *plans Eng N* 70:744-5 O 16 '13
 Centralized electrical control systems for Panama locks. *il Eng Rec* 68:730-1 D 27 '13
 Control equipment for the Panama canal locks. *il Elec W* 62:1317-20 D 27 '13
 Erection of Panama canal lock gates assembling 630-ton gates with overhead locomotive cranes. *il diags Eng Rec* 68:513-5 N 8 '13
 Lock gates for the Panama canal. *il plan Eng Rec* 67:228-31 Mr 1 '13
 Operating-control system of the Panama canal locks. *il diag Eng N* 70:1323-9 D 25 '13

Tolls

- Amend the Panama canal act. *Sci Am* 108:82 Ja 25 '13
 Block unit system versus net tonnage measurement. *Int Marine Eng* 18:511-2 D '13
 Panama canal and free tolls to domestic American shipping. C. Depesee. *Sci Am* 108:113 F 1 '13
 Toll exemption for coastwise shipping. E. R. Johnson. *Eng Rec* 67:62-3 Ja 18 '13
 Tonnage rules for Panama canal tolls. Ry & Eng R 53:1099-100 N 29 '13

Panama Canal Zone

- Visiting Panama in the rainy season. *Eng Rec* 67:sup 47 My 3 '13

Sanitary affairs

- Panama water-supply and purification system. A. T. Nabstedt. *il plan Eng N* 70:650-5 O 2 '13
 Panama Pacific international exposition, 1915. See San Francisco. Panama Pacific International exposition, 1915
 Pan-American railway
 Honduras link of the Pan-American railroad. E. Perry. *Eng M* 16:333-10 D '13
 Pan American Union
 Pan American Union and its annex. Washington, D. C. C. M. Price. *il plans diags Arch Rec* 34:385-457 N '13

Pantagraph

- Pantagraph which draws on steel with a point of flame. H. H. Suplee. *il Sci Am* 109:260 O 18 '13

Panther valley mining institute

- Second annual banquet at Tamaqua, October 18. *Colliery* 34:286-8 D '13

Paper

- Analysis of glare from paper. M. Luckiesh. *il Sci Am* S 76:170 S 13 '13
 India paper and its uses. W. F. Smith. *Sci Am* 109:275 O 4 '13
 Interesting uses of paper. *Sci Am* 109:266 O 4 '13
 Origin of paper. *Inland Ptr* 51:442 Je '13
 Pulp and paper and other products from waste resinous woods. F. P. Veitch and J. L. Merrill. U S Bur Chem Bul 159:1-28 '13
 Relations of paper, type and ink. E. M. Keatings. *il Inland Ptr* 50:683-7 F '13
See also Blue print paper

Testing

- How the government tests paper: the methods and machines of the Bureau of standards. H. T. Wade. *il Sci Am* 109:260 O 4 '13

Paper making and trade

- How trees are converted into paper. T. J. Keenan. *il Sci Am* 109:256-8 O 4 '13
 Manufacture of Swedish filter paper. G. Forstedt. *Sci Am* S 76:219 O 4 '13
 New American-Ball paper-mill engine. *il Ind Eng* 13:222-4 My '13; *Power* 37:629-30 My 6 '13; *Sci Am* S 75:284-5 My 3 '13
 Octopus of the spruce forest. W. H. Kempfer. *il Sci Am* S 76:216-7 O 4 '13
 Technology of the paper industry: the influence of soda consumption in boiling upon the yield of pulp produced. C. Beadle and H. P. Stevens. *Sci Am* S 76:214-5 O 4 '13
See also Paper mills

Paper mills

- Grinder room ventilation for paper mills. A. Ritter. *plans Dom Eng* 62:66-7 Ja 18 '13

Para, Brazil

- Port facilities. *il Eng Rec* 67:209 F 22 '13

Parachutes

- Aero-parachute. Levayasseur and Gastambide. *Am Soc M E J* 35:1285-7 Ag '13
 Parachute leap from an aeroplane. *il Sci Am* 109:229 S 20 '13
 Safety parachute for airmen. *il Sci Am* 108:520 Je 7 '13

Paraffin as fuel

- Paraffin as a fuel. *diags Automobile* 28:950-1 My 1 '13

Parasites

- Ultra-microscopic parasites. *Sci Am* S 75:80 F 1 '13

See also Bacteriology; Hookworm disease

Parcel post

- C. O. D. parcel-post service. *Inland Ptr* 51:259 My '13
 Maximum parcel. J. Becker. *il Sci Am* 108:451 My 17 '13
 Maximum parcel. D. W. Taylor. *il Sci Am* 109:31 JI 19 '13
 New mail carrying railway: a parcels post tunnel. *il Sci Am* 109:263 O 4 '13
 Parcel post and compensation for carrying mails. Ry & Eng R 53:741 Ag 2 '13
 Parcel post and the printer. *Inland Ptr* 51:66 Ap '13
 Printers and parcels post. G. D. Crain, jr. *Inland Ptr* 51:541-2 JI '13
 Reforms needed in parcel-post administration. *Eng N* 70:770-1 O 16 '13
 Shipment of 240 20-lb. boxes of fresh fruit by parcel post. *Ry Age* 55:420 S 5 '13
 Simple parcel post wanted. *Sci Am* 108:571 Je 28 '13
 Supply houses praise parcels post. *map Dom Eng* 62:46-7 Ja 11 '13
 Western railways demand adequate compensation for parcel post service. *Ry Age* 55:326 Ag 22 '13

Parcel post—Continued.

What the railways are losing through government injustice. Ry & Eng R 53:1184 D 20 '13

Paris, France**Bridges**

Point Notre-Dame reconstruction, Paris; arch replacement under traffic. il plans Eng N 70:1211-4 D 18 '13

Sawing a bridge with a wire. J. Boyer. il Sci Am 109:228 S 20 '13

Exhibitions

Latest motors at the Paris aero show. il Sci Am S 75:21-2 Ja 11 '13

Hotels

Electric hotel in Paris. J. Boyer. il Sci Am 109:345 N 1 '13

Rapid transit

Bus operation in London and Paris. J. A. McCollum. Elec Ry J 42:1093-6 N 22 '13

Electric railway construction in Paris. il plans Elec Ry J 42:648-9 O 4 '13

Mechanical and electric traction on the Paris streets. J. Boyer. il Eng M 44:56-78 O '12

Park drives and boulevards in Chicago. L. White. il Munic Eng 44:89-95 F '13

Parker, Thomas and Rice, architects

Work of Parker, Thomas and Rice. H. D. Croly; C. M. Price. il Arch Rec 34:96-184 Ag '13

Parks

Chicago—a city set in a garden. C. H. Wacker. il Munic Eng 44:45-7 Ja '13

Effect of parks and playgrounds on real estate valuation. Munic Eng 44:143-4 F '13

Kansas City park system. J. H. Lowry. il Munic Eng 44:2-7 Ja '13

Minneapolis park system. il Munic Eng 44:23-33 Ja '13

See also Playgrounds

Partitions (architecture)

Efficiency of thin solid partitions. H. B. McMaster. il Concrete Cem 3:233-5 N '13

Partitions for factories and industrial buildings. H. G. Tyrrell. il Eng M 45:853-61; 46:53-62 S-O '13

See also Fire walls; Fireproof construction

Pasadena, Cal.

Record of Pasadena's municipal plant. Power 38:626-7 O 28 '13

Bridges

Colorado street bridge over the Arroyo Seco. il plans Eng N 70:146-50 Jl 24 '13

Pasadena's beautiful bridge. il Sci Am 109:423 D 6 '13

Passaic valley sewer

Plans. il map Sci Am 109:320-1 O 25 '13

Passenger cars. See Cars

Passenger traffic. See Railroads—Passenger traffic

Passes. See Railroads—Passes**Pasteur Institute**

World's greatest life-saving station. il Sci Am 109:491-2 D 27 '13

Patent laws and legislation

Absurdities of the proposed compulsory license legislation. Sci Am 108:108 F 1 '13

Cameron septic tank decision. S. H. Crosby. Eng Rec 67:195-6 F 15 '13

Cameron septic tank decision in Knoxville case. Eng Rec 67:140 F 1 '13

Cleveland chamber of commerce and the Oldfield bill. Sci Am 108:343 Ap 12 '13

Collection of patent royalties from towns and cities. D. B. Luten. Eng N 70:883-5 O 30 '13

Compulsory licenses under United States patents. Sci Am 109:87 Ag 2 '13

Decision in the Wright aeroplane patent case. Sci Am 108:273 Mr 22 '13

Effect of foreign co-invention on validity of domestic patent. Elec W 62:66 Jl 12 '13

Inventors' guild and the Oldfield bill. Sci Am 109:125 Ag 16 '13

Legalized blackmail—Kahn bill. L. H. Baekeland. Elec W 62:1146-7 D 6 '13

Manufacturers and the Kahn law. Iron Age 92:1240 N 27 '13

Minority report of the House patent committee. Elec W 61:660 Mr 29 '13

Minority views on the Oldfield bill. Sci Am 108:238 Mr 15 '13

Mis-statements in the Oldfield report. Sci Am 108:82 Ja 25 '13

Outcome of the carborundum patent suit between Electric smelting & aluminum co. and the Carborundum co. Met & Chem Eng 11:203-6 Ap '13

Patent law rulings and the Sherman act. Iron Age 91:978 Ap 17 '13

Patent-law situation discussed in Chicago. Elec W 61:1028 My 17 '13

Patent situation. W. D. Weaver. Elec W 61:4-6 Ja 4 '13

Pirating of commercial designs and why a new law is needed to protect such designs. B. W. Bradford. Inland Ptr 51:903-4 S '13

Preliminary report to the Inventors' guild: the guild's relation to patent practise. F. L. O. Wadsworth. Sci Am S 75:146-7, 166, 178-9 Mr 8-22 '13

Present condition of the patent law. E. J. Prindle. Am Soc M E J 35:601-17 Ap '13; Discussion. 35:1244-6 Ag '13

Price maintenance and the Supreme court decision. Sci Am 108:508 Je 7 '13

Radical reforms in the conduct of patent litigation. G. H. Montague. Eng N 69:958-9 My 8 '13

Ratification of the convention of 1911 of the International union for the protection of industrial property. Sci Am 108:436 My 10 '13

Recent assaults upon the patent system: what they mean to manufacturers. G. H. Montague. Sci Am 108:491 My 31 '13; Same. Am Ind 13:23 Je '13; Same. Eng M 45:592-3 Jl '13

Reform of procedure in patent suits by the new rules. D. Smith. Met & Chem Eng 11:187-90 Ap '13

Remarkable offer by the United States government to owners of patents and copyrights. Eng N 70:334-5 N 6 '13

Report of the Economy and efficiency commission on the patent office. L. H. Baekeland. Elec W 61:969-73 My 10 '13

Resale price on patented articles. Elec W 61:1294-6 Je 14 '13

Resolution of Inventors' guild on patent reform. Elec W 62:270-1 Ag 9 '13

Shall we have compulsory licenses? Sci Am 108:170 F 22 '13

Simplifying patent legislation. Iron Age 91:1129-30 My 8 '13

Supreme court of the United States on price maintenance. Sci Am 108:545 Je 14 '13

Technically trained judges to decide patent cases. C. A. P. Turner. Eng N 69:1241 Je 12 '13

Waltham-Keene decision. G. C. Dean. Automobile 28:610 Mr 6 '13

Patent office. See United States—Patent office

Patents

Annual report of the commissioner of patents, 1911-1912. Sci Am 108:12-3 Ja 4 '13

Annual report of the commissioner of patents, 1912-1913. Sci Am 109:282 O 11 '13

Benefits of our patent system. J. B. Fay. Sci Am S 75:230-1 Ap 12 '13

Biological inventions: patenting life processes for industrial uses. Sci Am S 76:226-7 O 11 '13

Certain unrecognized patent rights. F. D. Withrow. Sci Am 108:355 Ap 19 '13

Chemical and metallurgical patents. See monthly numbers of Metallurgical and chemical engineering

Comments on the report of the investigation of the United States patent office. L. H. Baekeland. Met & Chem Eng 11:249-53 My '13

Common errors as to the value of a patent. S. H. Bunnell. Iron Age 92:1310-1 D 4 '13

Patents—*Continued.*

- Considerations on the nature of intellectual property: observations made thirty-five years ago. N. S. Shaler. *Sci Am S* 75: 46-7 Ja 18 '13
- Copper-clad steel suit. P. H. W. Smith. *Elec W* 62:244 Ag 2 '13
- Criterion of patentable invention. S. C. Barnes. *Sci Am S* 75:413-4 Je 28 '13
- Digest of electrochemical U. S. patents. See monthly numbers of Metallurgical and chemical engineering
- Employer's right to employee's invention. A. F. Jobke. *Elec W* 61:152 Ja 18 '13
- Expired patents. *Sci Am* 108:457 My 17 '13
- F. P. Fish on patents and industrial conditions. *Elec W* 62:571-3 S 20 '13
- Goodwill, patents, trade-marks, copyrights and franchises. P. J. Esquerré. *J Account* 15:27-9 Ja '13
- How patented inventions have increased the national wealth. *Sci Am* 108:414 My 3 '13
- In defense of brain property. *Sci Am* 108:62 Ja 18 '13
- Letters patent in relation to modern industrial conditions. F. P. Fish. *Sci Am S* 76:201-3, 222-4 S 27-O 4 '13
- Minority views on the Oldfield bill. *Sci Am* 108:238 Mr 15 '13
- Nature of the patent monopoly. J. H. Rusby. *Sci Am* 108:243 Mr 15 '13
- Negative-head patent decision in case of mechanical filters at Harrisburg. *Eng Rec* 68:287-S S 13 '13
- Patent experting—a new field for engineers. D. Smith. *Mach* 19:343-4 Ja '13
- Patent situation. W. D. Weaver. *Elec W* 61: 4-6 Ja 4 '13
- Patents and modern industrial conditions: the stimulus of patent protection. F. P. Fish. *Sci Am* 109:181 S 6 '13; Same cond. *Iron Age* 97:742-3 O 2 '13
- Patents relating to concrete construction. *Eng Rec* 67:69-70 Ja 18 '13
- Pestiferous patents. *Eng & Min J* 96:559 S 20 '13
- Plea for the patentee. W. E. Emory. *Sci Am* 108:355 Ap 19 '13
- Prices and the ultimate consumer. *Sci Am* 109:7 Jl 5 '13
- Protecting towns and cities from blackmailing patent litigation. *Eng N* 70:617 S 25 '13
- Protection of intellectual property in relation to chemical industry. L. H. Baekeland. *Met & Chem Eng* 11:31-6 Ja '13
- Weekly record of electrical patents. See weekly numbers of Electrical world
- See also* Inventions; Trade-marks

Patina

- Artificial and genuine patina. *Sci Am S* 75: 319 My 17 '13

Pattern frames

- The how of composition pattern plate making. *il Foundry* 41:247-8 Je '13

Pattern making

- Awakening of the patternmaker. J. Glass. *diags Foundry* 41:245-6 Je '13
- Economical operation of molding machines. W. S. Otto. *plans Foundry* 41:31-2, 64-6 Ja-F '13
- The how of composition pattern plate making. *il Foundry* 41:247-8 Je '13
- How the pattern shop costs can be reduced. D. Gordon. *diags Foundry* 41:357-8 S '13
- How to select and care for pattern lumber. E. F. Lake. *Foundry* 41:434-6 O '13

- Making patterns for machine-molded gears. J. Horner. *plans Foundry* 41:11-5 Ja '13
- Shellac pots for the pattern shop. H. N. Tuttle. *diags Foundry* 41:318 Ag '13

- Stock squeezer for wax fillets. G. Rogers. *diag Am Mach* 38:829-30 My 15 '13

See also Foundry practice

Pavement testing

- Chevy Chase, Md. experimental road. *il Munic Eng* 45:511-4 D '13
- Detroit machine for testing paving. J. C. McCabe. *Eng N* 69:585-6 Mr 20 '13

- Experimental pavement in Philadelphia. *il Eng Rec* 68:628-9 D 6 '13
- Mile of test pavements on Second avenue New York. H. W. Durham. *Eng Rec* 67: 213 F 22 '13

- Tests of concrete and brick pavements with the determinator at the American road Congress in Detroit. *il Eng Rec* 68:457-8 O 25 '13

Pavements

- Chevy Chase, Md. experimental road. *il Munic Eng* 45:511-4 D '13
- Construction of surfaces with bituminous materials: a study of the causes of some failures encountered. A. H. Blanchard. *Concrete Cem* 1:76-7 D '12; Same. *Sci Am S* 75:38-9 Ja 18 '13
- Economy of motor trucks in paving work. *il Eng Rec* 68:205 Ag 23 '13
- Effects of flood on pavements and sewers. G. C. Cummin. *il Eng Rec* 68:357-8 S 27 '13
- Form of pavement surface at street intersection. *Munic Eng* 45:446-8 N '13
- General instructions to inspectors of street paving by Bureau of highways of Borough of Manhattan, New York city. *Eng N* 69: 1114-5 My 29 '13
- Mineral rubber paving in St. Joseph, Mo. *il Munic Eng* 44:55-6 Ja '13
- Newark, N. J.—recommendations for Broad street paving. *Eng Rec* 67:345-6 Mr 29 '13
- Pavements in Peoria, Ill. J. E. Jeffries. *il Munic Eng* 44:437-9 My '13
- Paving and road matters in England. C. O. Burge. *Eng Rec* 68:186 Ag 16 '13
- Paving conditions in southern cities. *il Munic Eng* 44:73-8 F '13
- Paving in Chicago. F. W. Solen. *Munic Eng* 44:542 Je '13
- Paving in Trenton, N. J. under the new commission. H. F. Harris. *il Munic Eng* 44: 246-8 Mr '13
- Paving lore for the masses. G. C. Warren. *Eng Rec* 67:562-3 My 17 '13
- Paving protector used with T-rail in Memphis, Tenn. *il Elec Ry J* 42:1145 N 29 '13
- Proper construction of macadam street with concrete curb and gutter. *Munic Eng* 45:350-2 O '13
- Proper construction of road embankments. G. C. Warren. *il Munic Eng* 45:424-9 N '13
- Service tests and costs of two-inch blocks of gravel concrete, clay ash and vitrified shale laid since 1908 near Rochester, N. Y. W. G. Harger. *il Eng Rec* 68:624-6 D 6 '13
- Short-cuts on the job that save money. *il diag Concrete Cem* 3:229-1 N '13
- Street paving in Toledo, Ohio. *il Munic Eng* 45:251-2 S '13
- T-rail construction in paved streets. G. MacLeod. *plan Elec Ry J* 41:335 F 22 '13
- T-rail in paved streets. R. C. Fram. *il Elec Ry J* 42:368-73 S 6 '13
- Two methods of paving street railway tracks. *diag Eng N* 70:1229 D 18 '13
- Types of New York state roads. W. G. Harger. *il diags Eng N* 70:1148-54 D 4 '13
- U. S. government experimental pavements. *plan Concrete Cem* 1:64-6 D '12
- Unusual design for paving a street intersection, Norristown, Pa. S. C. Corson. *plan Eng N* 69:732 Ap 16 '13
- Work of the Philadelphia bureau of highways. *il Eng Rec* 67:627-8 Je 7 '13

See also Asphalt; Roads; Roads, Macadamized; Sidewalks

Cost

- Comparison of recent bids for various types of paving in the New York navy yard. W. H. Allen. *Eng N* 69:629-30 Mr 27 '13
- Cost data on street paving. *Eng Rec* 67:243-4 Mr 1 '13
- Cost of concrete base for pavements in Los Angeles. C. S. Pope. *Eng Rec* 68:637-8 D 6 '13
- Cost of recutting and laying granite block paving. C. A. Mullen. *Munic Eng* 45:539-41 D '13
- Cost of various kinds of pavement. *Munic Eng* 45:148 N '13

Pavements—Cost —Continued.

Pavement methods and costs. H. N. Rut-
tan. Munic Eng 45:546-7 D '13

See also Pavements—Valuation

Maintenance and repair

Care of streets in Chicago: abstract of a
report on cleaning and repairing streets.
Eng Rec 68:558-9 N 15 '13

Maintenance and treatment of smooth pave-
ments. Eng Rec 67:114 Ap 12 '13

Maintenance treatment of smooth pavements
in St. Louis. W. L. Hempelmann. Eng N
69:349 F 20 '13

Repair and maintenance of various kinds of
pavement, Chicago. Eng N 70:1137-8 D 4
'13

Resurfacing old pavements. W. K. Cooper.
Munic Eng 44:462-3 My '13

Valuation

Methods and costs of pavement evaluation:
inventory of the streets of the Borough of
Richmond, New York city. G. W. N. Hal-
lock. Eng Rec 68:643-4 D 6 '13

Pavements, Asphalt

Asphalt-paving cements. W. W. Crosby. Eng
Rec 68:417-8 O 11 '13

Asphalt paving cements and road binders. J.
W. Howard. Eng Rec 68:345-7 S 27 '13

Asphalt paving cements and road binders.
H. B. Pullar. Eng Rec 68:534 N 8 '13

Asphaltic or bituminous concrete pavements.
Munic Eng 45:50 J1 '13

Asphaltic or bituminous concrete pavements.
C. A. Mullen. Munic Eng 44:334-5 Ap '13

Binder course in asphalt pavements. F. N.
Bingham. Eng Rec 67:391-2 Ap 5 '13

Boulevard pavement must stand traffic. F. J.
Green. Munic Eng 44:40 Ja '13

Cost of asphalt repairs. il Munic Eng 44:387-
91 My '13

Creeping of an asphalt-block pavement. C.
S. Rindsfoos. Eng N 70:1315 D 25 '13

History of Fifth avenue asphalt pavement.
N. Y. C. Richardson. Eng Rec 67:18-9 Ja
4 '13

How to repair asphalt pavements. W. L.
Hempelmann. il Munic Eng 44:339-41 Ap '13

Laying Westrumite pavements with a Chi-
cago concrete mixer. il Munic Eng 45:483-
4 N '13

Resurfacing bituminous pavements. Capt.
Brook. Munic Eng 45:390 S '13

Rock-asphalt paving in San Antonio. il diag
Eng Rec 68:214 Ag 23 '13

Standard specifications for asphalt for pave-
ments. Munic Eng 44:116-7 F '13

Value of a binder course in bituminous pave-
ments. F. N. Bingham. Eng N 69:1079 My
22 '13

See also Asphalt plants

Pavements, Bitulithic

Park drives and boulevards in Chicago. L.
White. il Munic Eng 44:89-95 F '13

Warren patents on bitulithic paving. G. C.
Warren. Eng N 70:1145-6 D 4 '13

Pavements, Brick

Bituminous filler vs. cement grout for brick
pavements. C. R. Mandigo. Eng N 69: 224-
5 Ja 30 '13

Bituminous surfaces on brick pavements. Eng
Rec 67:195 F 15 '13

Bituminous surfaces on brick pavements. il
Munic Eng 44:336-8 Ap '13

Brick on country roads in New York. W. C.
Perkins. il Munic Eng 44:106-13 F '13

Brick pavements in Baltimore. R. K. Comp-
ton. Eng Rec 68:436 O 18 '13

Experiments in brick road construction. J. T.
Voshell. il diag Eng Rec 68:347-8 S 27 '13

Good brick pavements. Munic Eng 44:114-5
F '13

Observations on brick pavement. W. P. Blair.
Eng Rec 68:561-2 N 15 '13

Pointed observations on brick pavements and
on the rattler test. M. Schuyler. Eng Rec
68:447-8 O 18 '13

Prevention of defects in brick pavements. il
Munic Eng 44:96-101 F '13

Suitable foundations for brick pavements.
Eng Rec 67:138 F 1 '13

Tests of concrete and brick pavements with
the determinator at the American road
Congress in Detroit. il Eng Rec 68:457-8 O
25 '13

Vitrified brick pavement. Concrete Cem 1:
65 D '12

Wire-cut lug paving blocks. F. B. Marsh. il
Eng Rec 68:37-8 J1 12 '13

Pavements, Concrete

Asphaltic concrete as a paving material for
residence streets. L. White. Eng N 70:155-
7 J1 24 '13

Bituminous gravel concrete pavement. Eng
Rec 67:135 F 1 '13

Concrete—a superior pavement under hard
traffic. il Concrete Cem 1:52-4 D '12

Concrete highway construction. A. N. John-
son. Concrete Cem 1:72-5 D '12

Concrete pavement construction. il Munic
Eng 45:8-13 J1 '13

Concrete pavement costs. C. M. Boynton.
Munic Eng 45:243 S '13

Concrete pavement failures. il Munic Eng 44:
537-40 Je '13

Concrete pavement in Davenport and vicini-
ty. A. M. Compton. Concrete Cem 1:78-80
J1 '12; Same cond. Munic Eng 44:527-8 Je
'13

Concrete paving at Texarkana, Ark. Elec Ry
J 42:490 S 27 '13

Concrete paving between car tracks in
Birmingham, Ala. il Eng Rec 67:238 Mr 1
'13; Same. Elec Ry J 41:514 Mr 15 '13

Concrete paving in Europe. Concrete Cem
2:179 Ap '13

Concrete paving in Kansas City—74 miles in
1912. Concrete Cem 3:144 S '13

Concrete-paving kinks. il Eng Rec 68:374 O
4 '13

Essentials of reinforced concrete paving—
the experience in Fond-du-Lac. J. S. Mc-
Cullough. Concrete Cem 3:111 S '13

Four-inch concrete pavement slab tested.
Concrete Cem 2:220 My '13

Glare from concrete pavement avoided by
lampblack. M. G. Bennett. Concrete Cem 2:
150 Mr '13

Hassam concrete pavement. H. Parker. Con-
crete Cem 3:33-4 J1 '13

Investigation of concrete pavement in Chi-
cago. C. M. Powell; P. E. Green. il Eng N
69:430-4 F 27 '13

Methods of repairing cement-concrete pave-
ments. Eng Rec 67:131 F 1 '13

Methods of repairing concrete pavements. F.
E. Rogers. Concrete Cem 2:88-9 F '13

Methods which have developed successful
concrete pavements in Wayne county. Mich.
il Munic Eng 45:152-7 Ag '13

Mixing concrete for pavements. F. P. Wil-
son. Munic Eng 44:157 F '13

One- and two-course work in concrete paving.
Concrete Cem 2:236 My '13

Plain concrete paving used in Kansas City.
Mo. C. R. Mandigo. il Eng N 70:112-5 J1 17
'13

Plain concrete paving—what has been learned
from Alason City work. F. P. Wilson. Con-
crete Cem 3:111-2 S '13

Reinforced concrete pavements in St. Johns.
Hamtramck, Port Huron and Rockville.
Munic Eng 44:574-5 Je '13

Severe test of paving slabs. il Concrete Cem
2:270, 305-7 Je '13

Tests of concrete and brick pavements with
the determinator at the American road
Congress in Detroit. il Eng Rec 68:457-8
O 25 '13

Thomas reinforced concrete pavement in De-
troit. N. H. Beasley. il Munic Eng 44:460-1
My '13

Thomas system of reinforced concrete roads
and pavements. il Munic Eng 44:158 F '13

Two types of reinforced concrete pavement. il
Munic Eng 44:566-7 Je '13

U. S. government experimental pavements.
plan Concrete Cem 1:64-6 D '12

Vibrolithic concrete pavement. R. C. Stubbs.
il Concrete Cem 2:72-3 F '13

See also Roads, Concrete

Pavements, Concrete —Continued.**Bibliography**

Articles on use of cement concrete for street paving. *C. A. Mullen*. *Munic Eng* 44:328-9 Ap '13

Pavements, Macadamized. See Roads, Macadamized

Pavements, Stone

Cost of recutting and laying granite block paving. *C. A. Mullen*. *Munic Eng* 45:539-41 D '13

Granite-block pavement in navy yard at Brooklyn. *il Eng Rec* 68:181-2 Ag '13

Pavements, Wood

Creosoted block paving in Chicago. *J. E. Ericson*. *il plan Munic Eng* 44:17-20 Ja '13

Creosoted wood block in Atlanta, Ga. *R. M. Clayton*. *il Munic Eng* 44:39-40 Ja '13

Creosoted wood block in Cincinnati. *H. M. Waite*. *Munic Eng* 45:157-9 Ag '13

Creosoted wood block in Detroit. *J. J. Haarer*. *il Munic Eng* 44:234-6 Mr '13

Creosoted wood block pavement in Duluth. *J. Wilson*. *il Munic Eng* 45:181-3 N '13

Creosoted wood block pavement in Longview, Texas. *P. E. Green*. *Munic Eng* 45:363-4 O '13

Creosoted wood block pavement in New York. *il Munic Eng* 44:244-6 Mr '13

Creosoted wood block pavement laid by city day labor in Minneapolis. *E. R. Dutton*. *Eng N* 69:27-8 Ja 2 '13

Creosoted wood block pavements in Boston. *J. H. Sullivan*. *il Munic Eng* 45:256-8 S '13

Creosoted wood block pavements in Springfield, Mass., and New Haven, Conn. *Munic Eng* 45:544-5 D '13

European creosote specifications for paving block for city streets. *E. A. Sterling*. *Eng Rec* 67:495-6 My 3 '13

Heaving of wood-block pavement under extreme climatic conditions. Longview, Tex. *il Eng N* 70:1134-7 D 4 '13

Louisville (Ky.) creosoted wood block. *D. R. Lyman*. *Munic Eng* 44:540-2 Je '13

Merits of different woods for street paving. *H. G. Davis*. *Eng N* 69:302 F '13 '13

Oak-keyed Belgian block pavement. *il diag Eng N* 70:602-3 S 25 '13

Timber for creosoted block paving. *H. G. Davis*. *Elec Ry J* 41:154-5 Ja 25 '13

Wood block on steepgrades. *Eng Rec* 68:586-7 N 22 '13

Wood block pavements in Chicago. *L. A. Dumond*. *Munic Eng* 45:51-2 Ji '13

Wood-block paving practice; abstracts of 3 papers read before annual convention of Am. wood preservers' assn. *H. G. Davis*; *H. S. Loud*; *il L. Collier*. *Eng Rec* 67:133-4 F 1 '13

Wood paving with lug-blocks. *il Eng N* 69:567 Mr 20 '13

See also Roads, Plank

Pavilions

See also Grandstands

Paving. See Pavements

Pearls, Artificial

Artificial pearls. *Sci Am* 109:28 Ji 12 '13

Peat

Peat as a source of electrical energy. *Elec W* 61:175 Ja 25 '13

See also Briquets

Pedagogical laboratories

Pedagogical laboratories; how children are studied in a Russian laboratory. *P. R. Radosavljevich*. *il Sci Am* 109:161-2 Ag 30 '13

Teaching from the child's point of view: a new science created by Prof. Ernst Meumann. *P. R. Radosavljevich*. *il Sci Am* 109:141 Ag 23 '13

Pedals (automobile). See Automobiles—Pedals

Pedrail motor truck and trailer. *il Sci Am* 109:323 O 25 '13

Pégoud, Adolphe

Pégoud's remarkable performances. *il Sci Am* 109:301 O 18 '13

Pence, William David. 1865-

Sketch. *por Ry & Eng R* 53:466 My 17 '13

Pencil sharpeners

Pencil sharpeners. *il Sci Am* 109:478-9 D 20 '13

Pennsylvania**Highway department**

Progress on Pennsylvania's state highways. *Eng Rec* 68:652-3 D 13 '13

Labor and industry, Dept. of

Safety progress in Pennsylvania. *L. R. Palmer*. *Iron Age* 92:942-3 O 23 '13

Pennsylvania (warship)

Our latest battleship Pennsylvania. *il Sci Am* 108:173 F 22 '13

United States battleship Pennsylvania. *il Int Marine Eng* 18:170-1 Ap '13

Pennsylvania anthracite mine cave commission

Report and recommendations. *Colliery* 33:504-7 Ap '13

Pennsylvania electric association

6th annual convention, Delaware Water Gap, Pa., Sept., 1913. *Elec W* 62:565-6, 623-5 S 20-27 '13

Pennsylvania master plumbers' association

19th annual convention, Pittsburgh, March, 1913. *Dom Eng* 63:91-5 Ap 26 '13

Pennsylvania railroad

Grade elevation and six-tracking at Rahway, N. J. *J. J. Vail*. *il plans Eng N* 70:1118-21 D 4 '13

Improvements and betterments. *Ry & Eng R* 53:250-1 Mr 15 '13

Pennsylvania and the New York Central: comparison of revenues and expenses. *map Ry Age* 51:422-5 Mr 7 '13

Pennsylvania railroad company apprentice schools. *J. P. Jackson* and *J. W. L. Hale*. *Am Inst E E Pro* 32:1433-9 Je '13

Railroad signal systems; the Pennsylvania's method. *A. H. Rudd*. *Eng M* 46:102-5 O '13

Safety first exhibit. *il Elec Ry J* 42:334-5 O 25 '13

Safety in operating methods. *Ry & Eng R* 53:1017-8 N 1 '13

66th annual report for 1912. *Ry Age* 54:462-4 Mr 7 '13

Pensions

Age limit in pension benefits. *Ry Age* 54:980 My 2 '13

Boston Edison service annuities. *Elec W* 61:1074-5 My 24 '13

Pension plan for the machinery industry. *W. Lodge*. *Iron Age* 91:948-9 Ap 17 '13

Same. *Ind Eng* 13:283-4 Ji '13

Pension plan for workmen proposed by Wm. Lodge. *Iron Tr R* 52:870-2 Ap 10 '13

Pension system announced by San Francisco-Oakland terminal railways. *Elec Ry J* 41:47-8 Ja 4 '13

Revised pension plan: funding provision payable on separation from service. *Iron Age* 52:344-5 Ag 14 '13

Revised pension plan: funding provision upon actuarial calculations for each employee over and above present wage, due upon separation from service. *A. deRoode*. *Eng M* 45:728-30 Ag '13

Penstocks

Puntledge river power development, Vancouver, B. C. *il plans Eng N* 70:793-801 O 23 '13

Pentagram

To strike the pentagram. *D. Jones*. *Sci Am* 109:429 D 6 '13

To strike the pentagram. *J. P. Robinson*. *diag Sci Am* 109:394 N 22 '13

Peoria, Illinois**Bridges**

Erecting Illinois river bridge at Peoria. *il Eng Rec* 67:657 Je 14 '13

Streets

Pavements in Peoria, Ill. *J. B. Jeffries*. *il Munic Eng* 44:437-9 My '13

Periodicals

See also House organs; Trade papers

Indexes

Methods of increasing the use of technical literature. *L. B. Krause*. *Eng Rec* 67:544-5 My 17 '13

- Perishable freight.** See Freight, Perishable
- Perkin medal**
Presentation of the Perkin medal to James Gayley. *Met & Chem Eng* 11:71 F '13
- Permanganates**
Determination of manganese as sulphate and by the sodium bismuthate method. W. Blum. *U S Bur Stand Bul* 8:715-40 Mr 1 '13
- Peroxides**
Peroxides and per-salts. A. S. Neumark. *il Sci Am S* 75:182-3, 200-1, 221-3 Mr 22-Apr 5 '13
- Perpetual motion**
Story of the Keeley motor hoax. H. D. Jones. *il Sci Am* 108:473 My 21 '13
- Persalts**
Peroxides and per-salts. A. S. Neumark. *il Sci Am S* 75:222-3 Apr 5 '13
- Personal injuries**
Commission for the trial of personal injury cases. A. J. Falknor. *Elec Ry J* 42:137-8 Jl 26 '13
Court procedure in the trial of personal injury cases. H. Allen. *Elec Ry J* 42:139-40 Jl 26 '13
Legislation changing court procedure in the trial of personal injury cases. C. H. Winders. *Elec Ry J* 42:137 Jl 26 '13
- Peru**
Economic and commercial situation in Peru. C. M. Pepper. *il Iron Age* 92:1097-1100 N 13 '13
- Petrography**
Microscopy in economic geology. R. Beck. *Eng & Min J* 95:1987-9 My 31 '13
See also Rocks
- Petroleum**
Byron oil field of Wyoming. A. P. Rogers. *Eng & Min J* 96:869 N 8 '13
Cementing off water in oil wells. *Eng & Min J* 95:754 Apr 12 '13
Characteristics and differentiation of native bitumens and their residuals. J. R. Drancy. *Eng Rec* 67:675 Je 14 '13
Characteristics and differentiation of native bitumens and their residuals. C. Richardson. *Eng Rec* 67:466-8 Apr 26 '13
Fuel production in the United States: present consumption and future supply. R. H. Byrd. *il Sci Am* 109:10 Jl 5 '13
Gasoline and kerosene situation. J. A. Secor. *Sci Am* 108:459 My 17 '13
Interference between oil and gas wells and coal mines. *Eng N* 69:450-3 Mr 6 '13
Louisiana petroleum industry. H. S. Reavis. *Eng & Min J* 95:170 Ja 18 '13
Manufacture of petroleum products. F. C. Robinson. *il Met & Chem Eng* 11:389-94 Jl '13
Mexico a source of fuel. *Automobile* 28:566 F 27 '13
Notes from the Mid-Continental oil field. E. Haworth. *Eng & Min J* 96:628 O 4 '13
Oil industry of California. *Eng N* 69:254-6 F 6 '13
Optical activity of petroleum and its significance: new light on the nature and origin of mineral oil. F. W. Bushong. *Sci Am S* 76:86-7 Ag 9 '13
Petroleum explorations in Colombia. *il Eng & Min J* 95:749-50 Apr 12 '13
Petroleum in Texas in 1912. H. S. Reavis. *Eng & Min J* 95:169-70 Ja 18 '13
Petroleum in the United States. *Eng & Min J* 95:152-8 Ja 11 '13
Problem of the world's oil supply. *Sci Am* 108:325 Apr 5 '13
Proposed German government oil monopoly. *Eng & Min J* 95:432 F 22 '13
Recent oil developments in Texas and Louisiana. W. E. Wraether. *Eng & Min J* 96:1607-8 N 29 '13
Russian petroleum industry. *Eng & Min J* 95:158 Ja 11 '13
World's fuel-oil production. J. J. McIntosh. *il Power* 38:915-7 D 30 '13
See also Gas; Gasoline; Kerosene; Liquid fuel
- Petroleum as fuel**
Cleaning of oil fuel. R. T. Stroh. *il Elec W* 62:545-7 S 13 '13
Crude oil for the assay furnace. W. G. Hal-dane. *diag Eng & Min J* 96:1073-4 D 6 '13
Developments in oil fuel burning. E. H. Peabody. *il Int Marine Eng* 18:14-7, 60-4, 112-4 Ja-Mar '13; Same cond. *Power* 37:205-8, 244-6 F 11-18 '13
Exhaust gases from oils and gas fuels. J. C. Smallwood. *Power* 38:682-3 N 11 '13
Experiments with an oil-burning shaft furnace. A. L. Waters. *il Eng & Min J* 96:203-5 Ag 2 '13
Fuel oil for the navy. *Eng & Min J* 96:1105-6 D 13 '13
Fuel oil installations. Northern Pacific Ry. plans fly & *Eng R* 53:203-4 Mr 8 '13
Fuel oils for use in marine Diesel engines. *il Int Marine Eng* 18:104-5 Mr '13
Fuels for heavy-oil engines. I. C. Allen. *Eng M* 45:886-8 S '13
Heating fuel oil. *diag Eng & Min J* 95:376 F 15 '13
Heavy oil as fuel for internal-combustion engines. I. C. Allen. *Ind Eng* 13:392-5 S '13; Same. *Sci Am S* 76:326-7 N 22 '13
Liquid fuel and ship propulsion. *Eng Rec* 68:423 O 18 '13
Of nation-wide importance. *Sci Am* 109:62 N 26 '13
Oil as a fuel. R. Trautschold. *Power* 37:316-9 Mr 4 '13
Oil as a supplementary fuel in steam power-plants. R. Trautschold. *il Eng M* 45:695-700 Ag '13
Oil for internal-combustion engines. *Power* 38:15-6 Jl 1 '13
Oil fuel for destroyers and battleships. *Power* 37:145-6 F 4 '13
Oil fuel for steam boilers. R. T. Stroh. *il Elec W* 62:700-2 O 4 '13
Oil-fuel problem. *Power* 37:749-50 My 27 '13
Oil vs. coal for fuel. *Power* 37:396-7 Mr 18 '13
Performance of a 450-hp. boiler with oil fuel. A. L. Menzin. *il diag Eng N* 69:1124-6 My 29 '13
Purchasers' tests of crude fuel oil. W. B. Perkins. *il Power* 38:259-60 Ag 19 '13
Requirements for efficient burning of oil fuel. R. T. Stroh. *il Elec W* 62:145-6 Jl 19 '13
Use of fuel oil. J. Pierce. *Power* 37:682 My 13 '13
Word of warning: navies and the policy of oil fuel. *Sci Am* 109:46 Jl 19 '13
See also Gas and oil engines—Fuel; Kerosene
- Petroleum engines.** See Gas and oil engines
- Petroleum pipe lines**
Government's brief in the pipe line cases. *Ry & Eng R* 53:906-7 S 27 '13
Oil pipelines in California. *il Eng & Min J* 95:800 Apr 19 '13
Oil pipe lines in California. B. K. Stroud. *il Eng N* 69:500-1 Mr 13 '13
Southern Pacific contests California pipe line law. *Ry & Eng R* 53:875-6 S 13 '13
- Pewter**
Pewter ware. R. I. Geare. *il Metal Ind n s* 11:114-5 Mr '13
- Phase advancers**
Phase advancers. *Elec W* 61:462 Mr 1 '13
- Phase compensation.** V. A. Fynn. *diag Elec W* 62:28-34, 75-81, 132-6 Jl 5-19 '13
- Phenols**
Chemical constitution of resinous phenolic condensation products. L. H. Baekeland. *Met & Chem Eng* 11:312-4 Je '13
- Philadelphia, Pennsylvania**
Hughes terminal on the Delaware river. H. M. Harding. *plan Eng N* 69:296-8 F 13 '13
New steamship terminal at Philadelphia. H. M. Harding. *plan Int Marine Eng* 18:119-21 Mr '13
- Architecture**
Architectural Philadelphia yesterday and today. C. Fitz-Gibbon. *il Arch Rec* 34:20-45 Jl '13

Philadelphia, Pa.—Architecture—Continued.

- Practical housing development: evolution of the quadruple house idea. *il Arch Rec* 34: 46-55 *Ja '13*
 Three types of Georgian architecture. H. D. Eberlein. *il Arch Rec* 34:56-77 *Ja '13*

Bridges

- Reinforcing an old cantilever bridge. *il plan Eng N* 70:487-9 *S 11 '13*

Bureau of highways

- Annual report dealing with reorganization of staff and progress. *il Eng Rec* 67:627-8 *Je 7 '13*

Hotels

- Ritz-Carlton hotel. *il Arch & Bldg* 45:68-72 *F '13*
 Ritz-Carlton hotel; pictures. *Arch Rec* 34: 213-24 *S '13*

Public buildings

- Our earliest civic center: the Independence hall group in Philadelphia. T. Brabazon. *il Arch Rec* 34:1-19 *Ja '13*

Rapid transit

- Plans for Philadelphia rapid transit system explained to the Councils. *Elec Ry J* 42: 698 *O 11 '13*
 Proposed transportation lines discussed with reference to Philadelphia. *Elec Ry J* 41: 598 *Mr 29 '13*

- Rapid transit report on Philadelphia. map *Elec Ry J* 42:222-4 *Ag 9 '13*

- Striking maps of Philadelphia report—officials approve plans. *Elec Ry J* 42:652 *O 4 '13*

Sanitary affairs

- Sewage disinfection in Philadelphia. W. L. Stevenson. *il plan Eng Rec* 68:256-7 *S 6 '13*
 Studies of river bottoms in relation to sewage disposal. map *Eng N* 70:218-9 *N 6 '13*

Water supply

- Dual water-supplies and typhoid fever at Philadelphia. *Eng N* 70:1022-3 *N 26 '13*
 Use of chloride of lime with pressure filters: experience in purifying water subject to sudden variations in character. F. D. West. *il Eng Rec* 67:65-6 *Ja 18 '13*
 Water purification at Philadelphia during 1911. *Eng Rec* 67:93-5 *Ja 25 '13*
 Water-waste and pitometer surveys in Philadelphia. J. S. Ely. *Eng N* 70:676-7 *O 2 '13*

Philadelphia (frigate)

- Project to raise Decatur's frigate the Philadelphia. H. C. Plummer. *Sci Am* 108:539 *Je 14 '13*

Philadelphia & Reading railway

- Reconstruction of Mahanoy plane. J. S. Ward. *il plan Eng N* 70:1226-7 *D 18 '13*

Philadelphia rapid transit company

- Proposed co-operative store and other improvements in Philadelphia. *Elec Ry J* 41: 254 *F 8 '13*

- Re-routing, wages and co-operative buying discussed. *Elec Ry J* 41:1033-40 *Je 7 '13*
 Review of the Stotesbury management. *Elec Ry J* 42:1347-8 *D 27 '13*

Philippine Islands**Industries and resources**

- Philippines as a business proposition. L. R. Freeman. *il Eng M* 45:649-63 *Ag '13*

Public works

- Provincial public works organization and its engineering personnel. E. J. Westerhouse. *il Eng N* 70:358-62 *N 13 '13*
 Public works in the Philippine Islands under the American régime. H. F. Cameron. *il Eng Rec* 68:172-5, 202-5 *Ag 16-23 '13*

Phillips spring hammer

- Phillips spring hammer, with extension for drilling overhead. *il Elec R & W Elec'n* 62: 110 *Ja 11 '13*

Phonograph

- Clock that speaks the time of day. W. R. I. *il Sci Am* 109:35 *Ja 12 '13*
 Development of the talking machine. E. Berliner. *J Fr Inst* 176:189-200 *Ag '13*
 Improving the reproduction of talking-machine records. *il Sci Am* 109:247 *S 27 '13*

- Moving and talking pictures. *Sci Am* 108:78-9 *Ja 18 '13*

- New language-teaching phonograph. *il Sci Am* 109:287 *O 11 '13*

- Phonographic alarm clock. W. Isendahl. *Sci Am* 108:456-7 *My 17 '13*

Phosphate mining

- Gas engine and steam turbine power plants. W. C. Turner. *il Power* 37:480-2 *Ap 8 '13*

Phosphate ore

- Phosphate ore dressing. S. L. Lloyd. *il Mines & Min* 33:333-4 *Ja '13*

Phosphates

- Discovery and opening of a new phosphate field in the United States. C. C. Jones. *il Am Inst Min E Bul* 82:2411-35 *O '13*
 Our phosphate production. *Sci Am* *S* 76:99 *Ag 16 '13*
 Phosphate rock production. *Eng & Min J* 96: 535 *S 20 '13*

Phosphorescence

- Glow of sulphur. W. H. Watson. *Sci Am* *S* 76:391 *D 20 '13*
 Lenard's researches on phosphorescence: photoelectric action of light. E. N. Da C. Andrade. *Sci Am* *S* 76:190-2 *S 20 '13*
 Painting the town with phosphorescent paint. *Sci Am* 109:298 *O 18 '13*

Phosphorus

- Dangers of phosphorus and sodium. C. Vickers. *Foundry* 41:27 *Ja '13*
 Electric heating and the removal of phosphorus from iron. A. E. Greene. *Am Inst Min E Bul* 74:269-77 *F '13*

Photochemistry

- Photo-chemistry of the future. G. Ciamician. *Sci Am* *S* 75:258-9 *Ap 26 '13*

Photo-electric cells

- Photo-electric cell in photometry. *Elec W* 62:691-2 *O 4 '13*

Photoengraving

- Engraver from the buyer's point of view. E. R. Currier. *Inland Ptr* 51:257-9 *My '13*
 Simple cost-finding method for photoengravers. *Inland Ptr* 51:587-8 *Ja '13*

See also Photogravure

Photogrammetry. See Photographic surveying**Photographic departments. See** Photography in industry**Photographic surveying**

- Geographical charts prepared by aerial photography. G. Kammerer. *il Sci Am* *S* 75: 300-1 *My 10 '13*
 Panoramic camera and planetable vs. stereophotography for mapping Alaskan topography. J. W. Bagley. *Eng N* 69: 1016-7 *My 15 '13*
 Stereophotogrammetry. *Eng N* 69:632-3 *Mr 27 '13*
 Stereophotographic surveying. E. Deville. *Eng N* 69:926-1 *My 1 '13*
 Stereophotographic surveying. O. Lemberger. *il plans Eng N* 69:602-12 *Mr 27 '13*

Photographs**Reproductions**

- Making colored photographic reproductions with the aid of blue prints. *Sci Am* 109: 501 *D 27 '13*

Trimming, mounting, etc.

- Unmounting and remounting photographs. *Sci Am* *S* 75:129 *Mr 1 '13*

Photography

- Defects inherent in photographic views. A. Gleichen. *il Sci Am* *S* 76:76 *Ag 2 '13*
 New laboratory for research in optics and photography. *il Sci Am* *S* 76:56-7 *Ja 26 '13*
 Photography by invisible light. R. W. Wood. *il Sci Am* 109:380-1 *N 15 '13*
 Skin defects in invisible light. G. Michaud and F. Tristan. *il diag Sci Am* 109:489 *D 27 '13*

See also Blue printing; Cameras; Cinematographs; Map photography; Moving pictures; Photoengraving; Photographic surveying; Photographs; Photostat; Radiography

Photography—Continued.**Films**

Judicial decision involving the camera film. *Sci Am* 109:163 Ag 30 '13

Photography, Aerial

Geographical charts prepared by aerial photography. G. Kammerer. *il Sci Am* S 75: 300-1 My 10 '13

Photographing from a skyrocket. *il Sci Am* 108:110 F 8 '13

Photography from a kite. A. C. Gault. *il Sci Am* 108:514 Je 7 '13

Photography, Submarine

Photographing under water. *Sci Am* 109:6 JI 5 '13

Photography in industry

Photographic department of the National-Acme mfg. co. E. Sluka. *il Mach* 29:6-19 S '13

Photography of lightning

Stereoscopic views of lightning. *il Sci Am* 108:265 Mr 22 '13

Photography of sound

Photographing sound: a fine demonstration of wave motion. A. L. Foley and W. H. Souder. *il Sci Am* S 75:108-11 F 15 '13

Seeing sound: snap shots of waves traveling at 750 miles per hour. *il Sci Am* 108:152 F 15 '13

Photogravure

Rotogravure quick-printing process and its possibilities. *il Sci Am* S 75:248-9 Ap 19 '13

Photometry

Factors involved in use of the flicker photometer. M. Luckiesh. *Elec W* 61:835-6 Ap 19 '13

Graphic solution for illumination problems. N. S. Dickinson. *Elec W* 62:586-9 S 20 '13

Graphical representation of light distribution. *Elec W* 61:278 F 8 '13

Heterochromatic photometry. *Elec W* 61:599 Mr 22 '13

Heterochromatic photometry. H. E. Ives. *Elec W* 61:734 Ap 5 '13

Light distribution curves. E. J. Edwards. *Elec W* 61:578 Mr 15 '13

Light-distribution curves. R. F. Pierce. *Elec W* 61:1016 My 17 '13

Measurement of lights of different colors. *Sci Am* 109:89 Ag 2 '13

Photo-electric cell in photometry. *Elec W* 62:691-2 O 1 '13

Photometer for amateur work: the design and operation of a simplified illuminometer. C. H. Sharp and P. S. Millar. *plan Eng* M 44:264-6 N '12

Photometer for the measurement of light distribution. M. Schanzer. *diag Elec W* 62: 653 S 27 '13

Progress in photometry. H. E. Ives. *Elec W* 61:19-20 Ja 4 '13

Purkinje effect and comparison of flicker and equality-of-brightness photometers. M. Luckiesh. *Elec W* 61:620-1 Mr 22 '13

Rational method of showing light distribution. R. F. Pierce. *Elec W* 61:297-9 F 8 '13

Study in heterochromatic photometry. *Elec W* 61:698-9 Ap 5 '13

See also Color; Light; Lighting

Photostat

Photography in the drafting room. *il Eng* M 45:109-11 Ap '13

Photo-topography. See Photographic surveying**Physical geography**

See also Springs

Physical laboratories

Physical laboratory of the National electric lamp association. E. P. Hyde. *J Fr Inst* 176:77-93 JI '13

See also Electric laboratories

Physics

See also Atmosphere; Atoms; Barometer; Elasticity; Electricity; Evaporation; Force and energy; Friction; Gases; Gyroscope; Heat; Hydraulics; Hydrostatics; Light; Liquefaction of gases; Liquid air; Liquids;

Magnetism; Matter; Mechanics; Molecules; Radiation; Radioactivity; Strains and stresses; Thermodynamics; Thermometers; Units; Vibration

Physiognomy

Scientific employment of men: standardizing human character. H. Newton. *il Sci Am* 109: 68-9 JI 26 '13

Physiology

Sensibilities of the human organism. *Sci Am* S 76:239-40 O 11 '13

Piano players

Scientific investigation of pianoforte touch. *Sci Am* 108:331 Ap 12 '13

Piano players, Mechanical

Combined piano player and talking machine. *il Sci Am* 109:300 O 18 '13

Pickling (metals)

Improved pickling machine for sheets. *il Iron* Age 92:1162 N 20 '13

Mesta pickling machine. *il diag Iron Tr R* 53:912-3 N 20 '13

Modern pickling machines: halving acid consumption and labor by up-to-date design. E. C. Perkins. *il Sci Am* S 76:401 D 27 '13

Preparing grey iron for polishing and plating. T. C. Eichstaedt. *Metal Ind n s* 11:254-6 Je '13

Preparing gray iron for polishing and plating; practical method of pickling gray iron castings. J. H. Hansjosten. *Metal Ind n s* 11:118-9 Mr '13

Some present pickling methods. O. W. Storey. *Mt & Chem Eng* 11:45-8 Ja '13

Picture writing

See also Hieroglyphics

Pictures

See also Photographs

Piece-work

Methods of paying for manual service. *Eng* Rec 67:113 F 8 '13

Piece work. G. P. White. *Ry Age* (Mech ed) 87:490 S '13

Piecework or unit system of handling ties and timbers. W. W. Eldridge. *Ry Age* 54: 170-1 Ja 24 '13; Same. *Ry & Eng R* 53:122-3 F 8 '13

Piece work system applied to city forces. J. E. Tupper. *Munic Eng* 45:115-8 Ag '13

Premium, piece work, and the expense burden. A. H. Church. *Eng M* 46:7-18 O '13

See also Wages

Piecework. See Piece-work**Piers**

Building piers 30 and 32 at San Francisco. *il Eng Rec* 68:633-4 D 6 '13

Bulkhead and pier for the new port of San Diego, Cal. *il plan Eng* N 69:498-500 Mr 13 '13

Commonwealth pier 5, Boston. *il plans Eng* Rec 68:275-7 S 6 '13

Construction features of Balboa terminal at Panama. *Eng Rec* 67:381 Ap 5 '13

Freight pier at Communipaw, N. J. *il plans Ry Age* 54:1023-5 My 9 '13

Handling west-bound freight on the North river railroad piers, New York city. W. J. Barney. *plan Eng* N 70:309 Ag 14 '13

Pier for the outer harbor at Chicago. *diags Eng* N 70:552-3 S 18 '13

Reinforced-concrete pier at Port au Prince, Haiti. *il plan Eng Rec* 67:615-6 My 31 '13

Solving New York's pier problem with the model basin and the moving picture. *Sci Am* 108:392 My 3 '13

Structural and mechanical features of a railroad freight pier, Hoboken, N. J. *il plan Eng Rec* 67:586-8 My 24 '13

Tests of two brick piers of unusual size. J. E. Howard. *il Eng Rec* 67:332-4 Mr 22 '13; Same cond. *Eng* N 69:638-9 Mr 27 '13

Waterproofing the floors of piers. *il Int Marine Eng* 18:43 Ja '13

See also Bridges—Foundations and piers; Wharves

Piers (bridges). See Bridges—Foundations and piers

Pig iron

- Average daily pig iron output shows gain. Iron Tr R 52:552 Mr 6 '13
 Foundry pig iron smelted in electric furnaces; operations of Noble electric steel co., Heroult, Cal. il Iron Tr R 53:193-7 S 18 '13
 Heavy buying of steel making pig at Pittsburgh. Iron Tr R 52:181 Ja 16 '13
 High cost of pig iron making by Tennessee co. Iron Tr R 53:763-1 O 23 '13
 Increase in steel making pig iron. Iron Age 91:386-7 F 6 '13
 Pig iron and its method of manufacture. J. J. Porter. il Iron Tr R 52:61-75 Ja 2 '13
 Pig iron from titanium iron ores. Iron Age 92:981 O 30 '13
 Pig iron output in 1912. Iron Tr R 52:166-7 Ja 9 '13
 Pig iron production in 1912. Eng & Min J 95:336 F 8 '13
 Pig-iron production in 1913. Eng & Min J 96:274 Ag 9 '13
 Production of pig iron in the United States in 1912. Iron Age 91:373 F 6 '13
 Swing in pig iron prices. Iron Age 91:1070-1 My 1 '13
See also Cast iron; Iron; Iron founding

Pigeons

- Carrier pigeons in the French army. L. Fournier. il Sci Am 109:32-3 Jl 12 '13

Pigments

- Effect of pigments on the constants of linseed oil. H. A. Gardner. Am Eng 87:188-9 Ap '13
 Palette of the illuminator from the seventh to the end of the fifteenth century. Sci Am S 75:77 F 1 '13
See also Paint

Piles and pile driving

- Aids to navigation on the Missouri river. F. C. Perkins. il Sci Am S 75:100-1 F 15 '13
 Bank strengthening on the New York barge canal. plan Eng N 69:1284-5 Je 19 '13
 Concrete pile specifications for the Point bridge at Pittsburgh. Eng Rec 68:581 N 22 '13
 Convertible crane and pile driver. C. B. & Q. R. R. il Ry & Eng R 53:743 Ag 2 '13
 Early pile-drivers. il Eng N 70:1026-7 N 20 '13
 Large concrete pile installation for Youngstown Sheet & tube co.'s steel plant, Youngstown, O. il Eng Rec 67:36-7 Ja 11 '13
 New forms of steel sheet piling. il Ry Age 54:1565-6 Je 20 '13
 Sheet-pile cut-off for the protection of levee foundations. C. O. Sherrill. Eng N 69:247 F 6 '13
 Some experiences with concrete piles in Chicago. J. N. Jensen. plan Eng N 69:416-8 F 27 '13
See also Cofferdams; Concrete piling; Foundations; Wharves

Pillars. See Columns**Pima Indians**

- Irrigation water-supply for the Pima Indians. A. P. Davis. Eng N 70:956-7 N 13 '13

Pine

- Bending strength of yellow-pine timber. J. J. Morgan. Eng Rec 67:608-9 My 31 '13
 Examination of the oleoresins of some western pines. A. W. Schorger. il U S Forest Serv Bul 119:1-36 '13

Pins (machinery)

- Computing the shear on pins. W. C. Stripe. Am Mach 28:787-8 My 8 '13

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- Insulating wrappings for large water mains. il Eng N 70:1083 N 27 '13
See also Steam pipe covering

Pipe fittings

- 1912 U. S. standard for flanged fittings and flanges; with data sheet supplement. Mach 19:765 Je '13
 Pipe work and fittings. F. W. Fischer. Power 38:833-4 D 9 '13
 Stripping-plate machines for pipe fittings. il Foundry 41:520-1 D '13

- Tests on pipe fittings. plans Power 37:330-1 Mr 11 '13

See also Pipe joints; Piping; Plumbing; Steam pipes

Pipe joints

- Bulger self-equalizing expansion joint. il Power 38:223-4 Ag 12 '13
 Copper self-equalizing expansion joint. il Iron Age 91:1359 Je 5 '13
 Ferrum system of wrought piping. il diags Iron Age 92:838-9 O 16 '13; Same cond. Ind Eng 13:529-30 D '13
 Insulation of joints in pipe lines. diag Eng Rec 67:590 My 24 '13
 Making cold-drawn, seamless steel unions. il diags Iron Tr R 52:121-2 Je 5 '13
 Making pressed steel pipe unions. il Iron Age 91:1356-7 Je 5 '13
 New union for piping systems. il Sci Am 109:383 N 15 '13
 Some experiences in packing flange joints. W. H. Wakeman. il Dom Eng 62:8-9 Ja 4 '13
 Tests of pipe joints. A. J. Cleary. diags Eng Rec 68:119 Ag 2 '13

Pipe laying

- Laying submerged water main on pile supports to convey water supply of Richmond, E. C., across north arm of Fraser river. diags Eng Rec 68:554-5 N 15 '13
 Pipe-laying derrick and power backfiller for trench work. il Eng N 69:360 F 20 '13
 Sewer construction in quicksand. Eng N 70:1027-8 N 20 '13
 Should pipe lines be carried under or over streams? E. A. Moritz. Eng N 69:528 Mr 13 '13
 Specifications for drain tile, for sewer tile and for pipe laying. A. Marston and A. O. Adams. diags Concrete Cem 3:201-1 N '13
 Tamping machine for backfilling trenches. il Eng N 69:361-2 F 20 '13

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- Application of Briggs pipe-thread gage. il Power 38:582 O 21 '13

Pipe threading machines

- Mill pipe threading machine. il Iron Age 91:1171 My 15 '13

Pipes

- Corrosion of pipe in refrigerating systems. F. N. Speller. bibliog il Iron Age 92:1330-1 D 11 '13
 Fixtures for machining exhaust pipes. W. L. Myles. il Mach 19:434-5 F '13
 Identifying pipes. L. B. Lent. Power 37:775 Je 3 '13
 Iron pipe used for electric conduit. O. W. Storey. Met & Chem Eng 11:190-4 Ap '13
 Landis stationary pipe die head. il Ry Age (Mach ed) 87:626 N '13
 Locating hidden pipes by means of the wireless principle. il Am Ind 13:36-7 Mr '13
 Loss of head in pipe bends. Eng Rec 68:381-2 O 4 '13
 Loss of pressure due to elbows in pipe. diags Dom Eng 64:238-41 Ag 30 '13; Same cond. Power 38:303-4 Ag 26 '13
 Making of soil pipe as a plumber saw it. il Dom Eng 61:31-6 Jl 12 '13
 Riveted pipe works at south San Francisco; the Schwab Batchelor co. il plan Iron Age 92:761-4 O 2 '13
 Strength of drain pipe. A. O. Anderson. Eng & Min J 95:1146-7 Je 7 '13
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Pipes, Concrete

- Atlas concrete pipe machine. il diag Concrete Cem 3:44-6 Jl '13
 Concrete pipe and overflow basins for distributing irrigation water on the Sacramento valley project. E. C. Mills. il Eng Rec 67:652-4 Je 14 '13

Pipes, Concrete—Continued.

Concrete sewer-pipe tests in Kansas City, Mo. E. S. Wallace. *il Eng* N 69:568-9 Mr 20 '13

Forms for monolithic concrete pipe and man-holes. *il Concrete Cem* 2:252 My '13

Pressure tests of jointed concrete pipes. *il Eng* N 70:1126-7 D 4 '13

Reinforcing concrete pipe. C. E. Sims. *Concrete Cem* 3:204-5 N '13

Studies of coefficient of friction in reinforced-concrete pipe, Umatilla project, Oregon. H. D. Newell. *Eng* N 69:904-5 My 1 '13

Pipes, Heating. See Heating pipes**Pipes, Sewer.** See Sewer pipes**Pipes, Steam.** See Steam pipes**Pipes, Steel**

Designing steel pipe for minimum weight of metal consistent with safety: studies for the jawbone inverted siphon of the Los Angeles aqueduct. E. R. Bowen. *il Eng Rec* 68:682-1 D 20 '13

Making pressed steel pipe unions. *il Iron Age* 91:1356-7 Je 5 '13

Steel pipe details. J. B. Scott. *il diag Iron Age* 91:1368-9 Je 5 '13

Pipes, Wood

Durability of wood pipe. *Eng & Min J* 95:755-6 Ap 12 '13

Experience with wood stave pipe. E. M. Chandler; F. H. Cushman. *Eng* N 69:635-6 Mr 27 '13

Experience with wood-stave pipe in irrigation. R. K. Tiffany. *il Eng* N 69:244-7 F 6 '13

Repairing wood pipe. *il Eng & Min J* 95:469-70 Mr 1 '13

13½ ft. wood-stave pipe, Condit plant, Northwestern electric co., Portland, Ore. *il plans Eng* N 70:685-7 O 9 '13

Wood-stave-pipe line: White Salmon river power development. R. M. Overstreet. *il plans Eng Rec* 68:396-8 O 11 '13

Wooden pipes and casings. *plan Power* 37:714 My 20 '13

Piping

Interesting piping problem. W. L. Durand. *Power* 37:397 Mr 1 '13

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Failure of piston-rod riveting. *diags Power* 38:725 N 18 '13

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Concentration of pitchblende. H. E. Wood. *Eng & Min J* 95:1164-5 Je 7 '13

Preliminary report on uranium, radium, and vanadium. R. B. Moore and K. L. Kithil. *il map U S Bur Mines Bul* 70:43-9 '13

Pitot tubes

Air measurement by Pitot tubes: abstract of paper read before Am. Soc. M. E., 1912. C. H. Treat. *plans Eng* N 69:204-9 Ja 30 '13

Measurement of air in fan work: discussion of paper by C. H. Treat. *il Am Soc M E J* 35:295-9, 637-41 F. Ap '13

Notes on the Pitot tube, J. Airey. *plan Eng* N 69:782-3; 70:226-8 Ap 17, Jl 31 '13

Origin and theory of the Pitot tube. A. E. Guy. *il Eng* N 69:1172-5 Je 5 '13

Pitot tube formula. B. F. Groat. *Eng* N 69:1081 My 22 '13

Pitot tube in gas measurement. C. E. McQuigg. *diags Eng & Min J* 95:649-51 Mr 29 '13

Pitot tubes for gas measurement. W. C. Rowse. *il diags Am Soc M E J* 35:1319-79 S '13; Same cond. *Met & Chem Eng* H: 641-3 N '13

Use of Pitot tube in air measurements. F. L. Busey. *plan Power* 37:156-8 F 4 '13

Use of Pitot tube in air measurements. L. Loeb. *Power* 37:302-4 Mr 4 '13

Pittsburgh, Pennsylvania**Bridges**

Atherton avenue highway bridge. *il plans Eng* Rec 67:549-2 My 17 '13

Largest reinforced concrete bridge in America. F. C. Perkins. *il Sci Am S* 75:348 My 31 '13

Flood, 1913

Flood of January 9, 1913. K. C. Grant. *il Eng* N 69:230-3 Ja 30 '13

Pittsburgh flood of March 27. M. Knowles. *il map Eng Rec* 67:446-7 Ap 19 '13

Railroads

Track elevation of the P. R. R. at Pittsburgh. *il Ry & Eng R* 53:475-6 My 24 '13

Theaters

Structural details in the Harris theater. *plans Eng Rec* 67:52-3 Ja 11 '13

Pittsburgh and Lake Erie railroad

Efficiency in the manufacture of railway transportation. H. Emerson. *Eng M* 44:481-6, 751-8, 921-8; 45:174-82, 384-97 Je-Mr, My-Je '13

Efficiency in the manufacture of railway transportation: part played by supremely good personnel. K. M. H. Blackford. *Eng M* 45:71-5 Ap '13

Influence of the personality of the railroad executive. H. Emerson. *Eng M* 44:481-6 Ja '13

Unit basis for section-gang labor: maintenance of way system employed on the Pittsburgh and Lake Erie railroad. *Eng M* 44:783-5 F '13

Pittsburgh crucible steel co.

Pittsburgh crucible steel co.'s new plant. *il plans Iron Tr R* 53:821-31 N 6 '13

Pittsburgh flood commission

Relation of the proposed Pittsburgh flood reservoir system to navigation. *Eng Rec* 67: 519-20 My 10 '13

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Averaging recording-gage records. L. W. Taylor. *Power* 38:702 N 11 '13

Polar planimeter on circular charts. J. C. Smallwood. *Power* 38:260-1, 761-2 Ag 19, N 25 '13

Planing machines

Combined double-housing and open-side planer. *il Mach* 19:60-1 S '12

84-inch motor-driven planer of the Cincinnati planer co. *il Iron Tr R* 53:1150 D 25 '13

Methods used in erecting planers. E. K. Hammond. *il plans Mach* 19:1-5 S '12

Milling keyways on a planer. H. A. Stenger. *il Mach* 19:599 Ap '13

Planing steel racks for frog and switch planers. *il Mach* 19:33 S '12

Rack cutting on the planer. A. Clegg. *il Mach* 19:540-1 Mr '13

Sextuple nut planing machine. R. Grimshaw. *diag Mach* 20:307 D '13

36-in. open-side planing machine. *il Iron Age* 92:965 O 30 '13

See also Machine tools; Woodworking machinery

Planing mills

How an industrial plant in Louisville, Ky. was saved from the flood. C. M. Struck. *il Eng Rec* 67:578-9 My 24 '13

Planing mill exhaustor systems. *Elec Ry J* 41:617 Ap 5 '13

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Printers of note. W. C. Eleloch. *Inland Ptr* 51:366-7 Je '13

Plants

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- Plants, Effect of electricity on**
Electricity as a factor in plant growth. R. E. Dimick. *Sci Am* 108:155 F 15 '13
- Plants, Effect of radium on**
Stimulating plants by radium. *Sci Am* 108:492 My 31 '13
- Plants, Irritability and movements of**
Can a plant feel pain? S. L. Bastin. *il Sci Am* 109:186 S 6 '13
- Plaster**
Investigations of use of cement in ancient Crete. *Concrete Cem* 2:71 F '13
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- Plate-girders.** *See* Girders
- Plate metal work**
Progress in boiler, tank and plate shops. C. A. Tupper. *il Iron Age* 92:1127-30 D 25 '13
- Plateways.** *See* Trackways
- Plating**
Bennett-O'Connell mechanical plating device. *il Metal Ind n s* 11:491 N '13
Plater's story. D. S. Gruntel. *Metal Ind n s* 11:378-9 S '13
Schoop system of metal plating. *Mach* 19:869 J1 '13
See also Bronzing; Copper plating; Electroplating; Galvanizing; Gilding; Metal coating; Metal coloring; Nickel plating
- Platinum**
Assay method for palladium and platinum. H. D. Greenwood. *Eng & Min J* 96:1175 D 20 '13
Benefit of melting over platinum clips and filings in your own factory. M. Adelstein. *Metal Ind n s* 11:424-5 O '13
Platinum in 1912. *Eng & Min J* 95:79 Ja 11 '13
Production of platinum in the United States. *Colliery* 23:389-90 F '13
Recovering full value from platinum scraps and filings. C. Gaus. *plan Metal Ind n s* 11:211-2 My '13
- Playgrounds**
Cincinnati's playgrounds. *il Munic Eng* 44:9-14 Ja '13
Ideal playgrounds. A. W. Dunning. *il Munic Eng* 44:317-21 Ap '13
Ornamental use of concrete in playground structures in Hoboken park. *il plans Concrete Cem* 1:41-7 D '12
Practical playground apparatus. H. O. Berg. *Munic Eng* 44:150-1 F '13
Well regulated playgrounds. C. F. Booth. *Munic Eng* 44:452-3 My '13
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- Plows, Motor.** *See* Motor plows
- Plumbers**
Opportunity—a talk to Iowa plumbers. A. Mueller. *Dom Eng* 62:163-5 F 8 '13
Rutherford, N. J., has a woman plumber. *Dom Eng* 64:244 Ag 30 '13
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- Plumbers' credit information bureau.** *Dom Eng* 62:244-6 Mr 1 '13
- Plumbing**
Automobile factory plumbing. W. H. Chapman. *il Dom Eng* 63:144-5 My 10 '13
Commercial benefits of sanitary plumbing. W. Fawcett. *il Dom Eng* 65:102-4 O 25 '13
Continuous venting vs. crown venting. *diags Dom Eng* 65:240-1 N 22 '13
Disposal of acid waste in schools. J. Graham. *diags Dom Eng* 63:212-1 My 24 '13
Greenpoint hospital. Brooklyn plumbing plan. *Dom Eng* 62:216-9 F 22 '13
Mechanical equipment of Stock yards inn. *Dom Eng* 62:32-9 Ja 11 '13
Mt. Vernon, New York, hospital plumbing. *plans Dom Eng* 62:302-4 Mr 15 '13
Plumber and expert sanitation. W. Webb. *Dom Eng* 65:240-1 N 22 '13
Plumbing and heating in L. C. Smith building, Seattle. *Dom Eng* 65:344-5 D 13 '13
Plumbing with continuous venting once more. *Dom Eng* 64:73-4 J1 19 '13
Shut-off chart for private residence. *plans Dom Eng* 64:70-2 J1 19 '13
Waste pipes for chemical laboratories. *Dom Eng* 65:377-8 D 20 '13
Water—its properties and practical uses. F. W. Tower. *diags Dom Eng* 63:181-5, 218-9 My 17-21 '13
Winnipeg plumbing problems in winter. J. Smith. *il Dom Eng* 61:64-5 J1 19 '13
See also Baths, Public; Drainage, House; Heating; Heating pipes; Hot water supply; Laboratories; Pipe fittings; Pipe joints; Plumbing fixtures; Plumbing inspection; Plumbing trade; Sanitary engineering; Sewage disposal; Sewer pipes; Sewerage; Sinks; Solder and soldering; Steam pipes; Water pipes
- Accounting**
Bookkeeping for the master plumber. C. H. Dawson. *Dom Eng* 65:31-8 O 11 '13
Cost methods. W. A. Fink. *Dom Eng* 65:169-70 N 8 '13
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Plumbing school at Carnegie "Tech." *il Dom Eng* 65:139-40 N 1 '13
- Testing**
Plumbing tests at the University of Illinois. H. Y. Carson. *il Dom Eng* 61:125-8 Ag 2 '13
- Traps**
Grease traps—their interior construction. F. W. Tower. *diags Dom Eng* 65:43-4 O 11 '13
Principles and uses of various types of traps. F. W. Tower. *diags Dom Eng* 64:368-70 S 27 '13
- Plumbing fixtures**
Advance in manufacture of plumbing goods. W. Jacobus. *Dom Eng* 61:154 Ag 9 '13
Rights under mortgages to plumbing fixtures. *Dom Eng* 65:9 O 1 '13
Study of design in plumbing fixtures. F. W. Tower. *Dom Eng* 65:76-8 O 18 '13
Title to plumbing fixtures conditionally sold and used in mortgaged building. *Dom Eng* 64:72-3 J1 19 '13
Urinals—their sanitary requirements. F. W. Tower. *Dom Eng* 65:163-4 N 8 '13
See also Bath tubs; Bathrooms; Sinks
- Plumbing inspection**
Proposed plumbing inspection ordinance for Chattanooga, Tenn. *Dom Eng* 63:239-40 My 24 '13
Report of Ohio inspector of plumbing. W. C. Groeniger. *Dom Eng* 62:305-10, 373-4 Mr 15, 29 '13
- Plumbing law**
Construction of law with reference to examination and registration of plumbers. *Dom Eng* 64:42 J1 12 '13
Plumbing ordinance for Morrison, Illinois. *Dom Eng* 65:203-5 N 15 '13
Rights under mortgages to plumbing fixtures. *Dom Eng* 65:9 O 4 '13
Title to plumbing fixtures conditionally sold and used in mortgaged building. *Dom Eng* 64:72-3 J1 19 '13
See also Plumbing inspection
- Plumbing trade**
Business methods for the master plumber. W. A. Fink. *Dom Eng* 65:70-1, 107-8, 169-70, 206-7, 267-9, 306-7, 373 O 18-25, N 8-15, 29, D 6, 20 '13 (to be cont)
Cause of the small profit in the plumbing business. E. C. Cole. *Dom Eng* 63:306-7 Je 11 '13
Do attractive showrooms justify investment? *il Dom Eng* 62:226-9 F 22 '13

Plumbing trade *Continued.*

- Effective blanks for handling plumbing business. T. E. Oakes. *il Dom Eng* 65:155 N 15 '13
- Few don't's to Iowa master plumbers. *Dom Eng* 62:276-7 Mr 8 '13
- Finance, business and the master plumber. E. R. Gurney. *Dom Eng* 64:150-2 Ag 9 '13
- How shall I figure the profit? E. McCullough. *Dom Eng* 63:345 Je 21 '13
- Increased efficiency and the motor truck. *Dom Eng* 62:230-1 F 22 '13
- Moses Iron's experiments—the salesman. D. L. Hanson. *Dom Eng* 64:182-5 Ag 16 '13
- Overhead cost in the plumbing business. R. H. Pfug-Felder. *Dom Eng* 61:332-3 S 20 '13
- Publicity for plumbers. *Dom Eng* 62:311-2 Mr 15 '13
- Solution of the apprenticeship problem. F. E. Fladd. *Dom Eng* 63:401-2 Je 28 '13
- Some of the elements of contract work. E. J. Long. *Dom Eng* 65:160-2 N 8 '13
- What should the selling price be? R. H. Pfug-Felder. *Dom Eng* 65:338-40 D 13 '13
- Where costs end and profits begin. F. S. Prior. *Dom Eng* 61:364-7 S 27 '13

Pneumatic pumps. See Air pumps

Pneumatic tires. See Tires

Pneumatic tools

Compressed air as a foundry auxiliary. *il Iron Age* 91:196-9 Ja 16 '13

Pneumatics. See Air flow; Gas flow; Gases

Pointing apparatus

Enlargement of sculpture; pointing machine. J. Hollingsworth. *il diag Sci Am* 109:126 D 6 '13

Poisons

See also Auto-intoxication; Lead poisoning

Poles

- American electric railway association: report of the committee on joint use of poles. *il Elec Ry J* 42:855-7 O 17 '13
- Condition of experimental telegraph poles, treated and untreated, after eight years' service. C. H. Teesdale. *Eng N* 70:1084-6 N 27 '13
- Erecting a one-piece wooden flagpole 208 feet long at Vancouver. *il Eng Rec* 68:356 S 27 '13
- Poles purchased in 1911. *Elec Ry J* 42:64 Jl 12 '13
- Preservation of poles by kyanizing. *Ry & Eng R* 53:1054 N 15 '13
- Preservation tests on poles. *Eng & Min J* 95: 898 My 3 '13
- Removal of poles from city streets. *Elec W* 61:993 My 10 '13
- Tests of wooden poles reinforced at ground line. *il Elec Ry J* 42:307-8 Ag 23 '13
- Wood poles in the electrical industry. *Elec W* 61:101 Ja 11 '13

Poles, Concrete

- Concrete poles for distribution lines. *diag Elec W* 62:1335-6 D 27 '13
- Construction of concrete lighting standards at Eldorado, Kan. *il Elec W* 62:1331-2 D 27 '13
- Experiences with concrete poles by the New York state railways. *il plans Elec Ry J* 41:502-4 Mr 15 '13
- Reinforced concrete telegraph poles. *Ry Age* 55:286 Ag 15 '13
- Reinforced-concrete trolley poles in Cleveland. L. P. Creelius. *il Eng N* 69:510-1 Mr 13 '13
- Reinforced-concrete trolley poles in Syracuse and Utica. *Eng N* 69:1046-7 My 22 '13
- Suggested design for reinforced concrete poles. *plan Ry & Eng R* 53:1038 N 8 '13

Police

- Automobile in the police department. Peoria. Ill. W. W. Rhoades. *il Munic Eng* 44:357-8 Ap '13
- German police telephone. A. Gradenwitz. *il Sci Am S* 75:61 Ja 25 '13
- Motor driven police patrols. *Munic Eng* 45: 576 D '13

Polio-myelitis. See Infantile paralysis

Polk, Willis

Varied work of Willis Polk. C. M. Price. *il Arch Rec* 34:566-84 D '13

Pond-week fallacy. B. Brooks. *Eng Rec* 68:336 S 20 '13

Pond-week fallacy. L. L. Dyche; W. S. Gearhart. *Eng Rec* 68:418 O 11 '13

Pontoon bridges

Military pontoon bridges in swift water. *Eng Rec* 68:515-6 N 15 '13

Modern engineering in an ancient eastern capital: new pontoon bridge, Constantinople. F. C. Coleman. *il Sci Am S* 75:50-1 Ja 25 '13

Pontoon bridge over the Golden Horn at Constantinople. F. C. Coleman. *il Eng N* 70: 1018-20 N 20 '13

Pontoons

Concrete pontoons for a boathouse. D. C. Findlay. *il plan Concrete Cem* 3:127-9 S '13

Pooling

Change of sentiment in regard to pools. *Iron Age* 91:1398 Je 5 '13

Poor Richard club

Poor Richard club, of Philadelphia. *Inland Ptr* 50:891 Mr '13

Population

Law of population concentration. F. Auerbach. *Sci Am S* 76:384 D 13 '13

United States

Population of New York state. *Sci Am S* 75: 256 Ap 19 '13

Porcelain

Porcelain: its manufacture and decoration. A. Gradenwitz. *il Sci Am S* 76:312-3 N 15 '13

See also Pottery

Pork. See Swine

Port au Prince, Haiti**Harbor**

Reinforced-concrete pier at Port au Prince, Haiti. *il plan Eng Rec* 67:615-6 My 31 '13

Port commissions

Port organization and development. *Eng Rec* 68:570-1, 611-2 N 22-29 '13

Portland, Oregon**Bridges**

Broadway bridge over Willamette river. W. P. Hardesty. *il plan Eng N* 70:704-10 O 9 '13

Portland cement

Bonus system for the purchase of Portland cement. *Eng N* 70:281 Ag 14 '13; *Eng Rec* 68:215-6 Ag 23 '13

Cement and hydrated lime plant of Tidewater Portland cement co. R. K. Meade. *il plan Eng N* 70:858-64 O 30 '13

Cement materials and the manufacture of Portland cement in Montana. W. H. Andrews. *Am Inst Min E Bul* 81:2383-7 S '13

Delaware, Lackawanna & Western specifications. *Ry Age* 54:158 Ja 24 '13

Depreciation and obsolescence in Portland cement plants. H. Struckmann. *Am Soc M E J* 35:262-4 F '13; Discussion. 35:261-75 F '13

Hydrated lime, and its use; discussions by R. K. Meade and R. R. Newman. *Concrete Cem* 1:89 D '12

Modern methods in the manufacture of Portland cement. H. K. G. Bamber. *Eng N* 69: 1318-9 Je 26 '13

Portland cement specification of Lackawanna R. R. *Eng N* 69:185 Ja 23 '13

Recommended changes in Portland cement specifications. *Eng N* 69:298 F 13 '13

Remarks on the depreciation factor in the cost of producing Portland cement. F. H. Lewis. *Am Soc M E J* 35:257-61 F '13

Southwestern Portland cement works, El Paso, Texas. C. A. Smith. *il plan Eng & Min J* 96:719-23 O 18 '13

See also Cement

Portland, Eugene & Eastern railroad

Construction of the Portland, Eugene & Eastern. *il map Ry Age* 55:453-4 S 12 '13

Ports

- Aspects of transportation: ocean transportation. J. E. Kuhn. *Sci Am S* 76:166-7 S 13 '13
- Freeport, Tex.—new port and railroad terminal on the Gulf. A. W. Davis. *il Ry & Eng R* 53:499-501 My 31 '13
- Freight burtoning at marine terminals. H. M. Harding. *il Int Marine Eng* 18:489-92 N '13
- New York the leading port of the world. *Sci Am* 109:176 S 6 '13
- Ocean terminal for the South: Texas City harbor developments. L. C. Talmage. *il Sci Am S* 75:116-7 F 22 '13
- Port development. *Int Marine Eng* 18:41 Ja '13
- Port facilities at Para, Brazil. *il Eng Rec* 67:209 F 22 '13
- Port facilities for ships and cargoes. W. T. Donnelly. *Int Marine Eng* 18:107-9 Mr '13; Same cond. with discussion. *Am Soc M E J* 35:297-1009 Je '13
- Port improvements at San Francisco. F. G. White. *plan Eng Rec* 68:49-50 Ji 12 '13
- Port of Hamburg. I. E. Bubendey. *il Eng N* 70:189-91 Ji 31 '13
- Port organization and development. *Eng Rec* 68:570-1, 611-2 N 22-29 '13
- Proposed port of Richmond, Cal., in San Francisco bay. *Eng N* 69:145 Ja 23 '13
- Question of a free port at New York city. *Ry & Eng R* 53:503-4 My 31 '13
- See also* Docks; Harbors; Mechanical handling; Shipping; Terminals

Post-office. *See* Postal service

Post-office buildings

- Heating and ventilating in Toledo post office. *Dom Eng* 62:184-8 F 15 '13
- New terminal post office in New York; electrical and mechanical equipment, wiring and illumination. L. B. Marks and J. E. Woodwell. *il Elec W* 61:39-43, 137-43, 191-5, Ja 4, 18-25 '13
- New U. S. post office building for New York. *il Arch & Bldg* 45:155-61 Ap '13
- U. S. post office at York, Pa. J. K. Taylor. *il Arch & Bldg* 45:304-7 Ji '13

Postal cars

- Government ownership of postal cars. *Ry & Eng R* 53:1152-3 D 13 '13
- Lighting fixtures for postal cars. *il Ry Age* 54:681-2 Mr 21 '13; Same cond. *Am Eng* 87:218-9 Ap '13
- Lighting specification for full postal cars. *Ry & Eng R* 53:63-4 Ja 18 '13
- Postal car illumination tests by Baltimore & Ohio railroad. *Elec W* 61:680-1 Mr 29 '13
- Postal car illumination tests, Baltimore & Ohio R. R. *Ry & Eng R* 53:317-8 Ap 5 '13
- Postal car illumination tests made by the Baltimore & Ohio. *diags Ry Age* 54:669-71 Mr 21 '13; Same. *Am Eng* 87:212-4 Ap '13
- Postal car law and specification. *Ry & Eng R* 53:1040-1 N 8 '13
- Postal-car ventilation. *il Ry & Eng R* 53:577-8 Je 14 '13
- Specifications for postal car lighting. *Ry Age* 54:149-50 Ja 24 '13; Same. *Am Eng* 87:97-8 F '13
- Wabash 60-foot steel postal car. *il plans Ry Age (Mech ed)* 87:609-13 N '13

Postal service

- Simple much-needed postal reform to prevent understamping. H. Kahler. *Am Ind* 13:22 Ji '13

See also Electric railway mail service; Mail handling; Parcel post; Postal cars; Post-office buildings; Railway mail service

United States

- New terminal post office in New York. L. B. Marks and J. E. Woodwell. *il Elec W* 61:39-43, 137-43, 191-5 Ja 4, 18-25 '13
- Parcels post tunnel railway. *il Sci Am* 108:4 Ja 4 '13

Potash

- Formation and structure of the German potash beds. H. Boeke. *il Sci Am S* 75:406-7 Je 28 '13

- Kelp and other sources of potash. F. K. Cameron. *il map J Fr Inst* 176:347-83 O '13
- More potash legislation looked for. *Eng & Min J* 95:432 F 22 '13
- Potash in Columbus Marsh, Nevada. *Eng & Min J* 95:368 F 15 '13
- Searles lake, Cal. potash deposit. C. E. Dolbear. *il Eng & Min J* 95:259-61 F 1 '13

Potassium permanganate

- Standardization of potassium permanganate solution by sodium oxalate. R. S. McBride. *U S Bur Stand Bul* 8:611-42 Mr 1 '13

Potential waves. See Electric waves**Potosi, Bolivia**

- City of Potosi, Bolivia. *Eng & Min J* 95:1083 My 31 '13

Pottery

- Growth of the sanitary pottery industry. *Dom Eng* 65:86-7 O 18 '13
- See also* Kaolin; Porcelain

Poultry

- Electrified chickens—electricity as a growth stimulator. *il Sci Am* 109:287 O 11 '13

Poultry, Shipment of

- Refrigeration of dressed poultry in transit. M. E. Pennington and others. *il U S Agric Bul* 17:1-35 '13

Poultry houses

- Building a chicken house. *il Arch & Bldg* 45:317-22 Ag '13

Powdered fuel. See Coal, Pulverized**Power**

- Figuring power for refrigerating plants. S. Sydney. *Power* 38:201-2 Ag 5 '13
- Figuring the power required for rolling metal. V. E. Edwards. *diag Iron Tr R* 53:1009-10 D 4 '13
- Harnessing nature: can the free energy of space be utilized? W. Kaempfert. *Sci Am* 108:308-9 Ap 5 '13
- Industrial power in the United States. *Power* 38:484 S 20 '13
- Neglected source of power in nature: the temperature gradient of sea water. B. J. Campbell. *Sci Am S* 76:194 S 27 '13; Same. *Eng N* 70:250-1 Ag 7 '13
- Power census of the United States: ninety per cent of the total power produced by the consumers. D. H. Tuck. *Sci Am S* 75:70 F 1 '13
- Power development at the Panama-Pacific exposition. *Power* 38:563-4 O 21 '13
- Power from waste fuel. *Sci Am S* 75:91 F 8 '13
- Power generation and transmission in industrial works. *Power* 37:687 My 13 '13
- Utilizing low-grade temperature drops as a source of power. *Eng N* 70:270-1 Ag 7 '13
- Utilizing power generated in engine tests. A. G. Popeke. *Am Mach* 38:855-6 My 22 '13
- See also* Compressed air; Electric power; Engines; Gas power; Hydroelectric power; Machinery; Mechanics; Myriawatt; Power plants; Power transmission; Solar power plants; Steam; Tide power; Water power; Wave motors

Power cost

- Analysis of cost of electric drive in a foundry. *Elec W* 62:537 S 13 '13
- Analysis of kilowatt-hour costs of combination system. *Elec W* 62:238 Ag 2 '13
- Analysis of motor-service and heating costs in a jewelry factory: Coddling-Heilborn co., North Attleboro, Mass. *Elec W* 61:1369-70 Je 21 '13
- Can the factory generate its own power cheaper than the central station can supply it? *Ind Eng* 13:478-80 N '13
- Comparative cost of gas and steam plants. L. B. Lent. *Power* 38:365-6 S 9 '13
- Comparative costs of motive power in ice manufacturing. *Elec W* 62:555 O 11 '13
- Comparative costs of operating ice factory by oil engines and electric motors. C. E. Rose. *il Elec W* 62:1225-6 D 13 '13
- Comparative costs of power generated by oil and coal. *Eng & Min J* 95:712 Ap 5 '13
- Comparative economy of producer gas and steam for pumping stations. *Eng Rec* 68:262-3 S 6 '13

Power cost—Continued.

- Comparative installation and operating costs of a combined ice-manufacturing and cold-storage plant. R. H. Tait and L. C. Nordmeyer. *Power* 38:666-8 O 28 '13
- Cost figures from Brookings. S. D. E. M. Soreng. *Il Elec W* 62:1331 D 27 '13
- Cost of factory motor service. F. T. Leilich. *Elec W* 62:596 S 20 '13
- Cost of manufacturing electricity in very large stations. *Eng Rec* 68:311 S 20 '13
- Cost of power with small gas engine unit. S. B. Moore, jr. *Power* 37:52-3 Ja 14 '13
- Cost of steam and gas equipment. A. A. Potter. *Power* 38:338-40 D 30 '13
- Cutting the cost of power for the factory. S. Dean. *Iron Age* 91:936-7 Ap 17 '13
- Economy of electric drive for air-compressor service. *Elec W* 61:1418 Je 28 '13
- Electric power costs at El Tigre. *Eng & Min J* 95:523-4 Mr 8 '13
- Electrifying a water-meter factory. *plan Elec W* 62:694-5 O 4 '13
- Gas-driven blowers at Bethlehem steel co. A. West. *Iron Age* 91:1303-5 My 29 '13
- Same. *Iron Tr R* 52:1400-3 Je 19 '13
- Gas engines in blast furnaces and steel plants. H. J. Freym. *Iron Tr R* 52:1242-8 My 29 '13
- Same cond. *Iron Age* 91:1290-1302 My 29 '13
- Gas engines vs. steam for pumping. *Power* 38:788-9 D 2 '13
- Indirect heating systems with respect to maximum economy and operation. F. L. Busey and W. H. Carrier. *Heat & Ven* 10:30-7 Mr '13; Same. *Power* 37:380-2 Mr 18 '13
- Installation of a power plant of 100 H. P. in factory having large quantities of wood waste available. R. E. Mathot. *Am Soc M E J* 35:332-4 F '13
- Investigation of cost of motor drive in a six-story factory. *Elec W* 62:381-2 Ag 23 '13
- Low-pressure steam turbines; economic advantages. J. Strauss. *Power* 38:220-3 Ag 12 '13
- Method of cost finding. W. L. Durand; D. Fliegehn. *Power* 38:797-8 D 2 '13
- Modern methods of reducing generating costs. D. W. Gilbert. *Elec Ry J* 41:759 Ap 26 '13
- Motor driving in envelope factory. *Elec W* 61:1417 Je 28 '13
- Practical co-operation between central station and isolated plant. P. R. Moses. *Eng M* 41:578-87 Ja '13
- Purchased power in coal mines. H. C. Eddy. *Am Inst E E Pro* 32:158-64 Ap '13; Discussion 32:2206-13 D '13
- Purchased power in New York state. *Elec Ry J* 41:1016-8 Je 7 '13
- Purchasing or making power. II: D. Jackson. *Power* 38:327 S 2 '13
- Rates for electricity. II: D. Jackson. *Eng M* 44:226-34 D '12
- Relation of plant size to power cost. P. M. Lincoln. *Am Inst E E Pro* 32:1936-48 O '13
- Am Inst E E Pro 32:1936-48 O '13
- Renton heel co., Lynn, Mass.; good record for small isolated plant. F. L. Johnson. *Il Power* 38:456-8 S 30 '13
- Securing full-schedule business from present breakdown-service customers. *Elec W* 62:1214-5 D 13 '13
- Standardization of method for determining and comparing power costs in steam plants. H. G. Stott and W. S. Gorsuch. *Am Inst E E Pro* 32:1098-1131 My '13
- Standardization of power cost comparisons. *Eng Rec* 67:567 My 24 '13
- Variation of energy cost with plant size. *Elec W* 62:782-3 O 18 '13
- See also Electric driving; Electric power—Cost

Power plants

- Combining steam and gas power; Mesta machine co.'s power plant. Pittsburgh. *Il plans Iron Age* 91:38-41 Ja 2 '13
- Copper Queen mine power plant, Bisbee, Ariz. *Eng & Min J* 95:615-6 Mr 22 '13
- Cost of heating and power-plant apparatus; W. J. Downing. *Power* 38:724-2 N 18 '13
- Efficient power plant operation. E. Cordeal. *Ry Age* (Mech ed) 87:531-3 O '13

- Engineer's annual report. C. T. McChesney. *Power* 37:666 My 13 '13
- Estimating on cost of power plants. *Eng & Min J* 95:903 My 3 '13
- Gas engine and steam turbine power plants. W. C. Turner. *Il Power* 37:480-2 Ap 8 '13
- Guide for close estimating on cost of power plants. *Eng N* 69:856 Ap 24 '13
- Keeping tab in industrial plants. P. Lundebj. *Power* 37:71-2 Ja 21 '13
- New York city's power problem. A. D. Blake. *Il plan Power* 38:286-90 Ag 26 '13
- Poor lighting in the power plant. *Power* 37:499-500 Ap 8 '13
- Power-plant curves. J. C. Hawkins. *Power* 37:717-8 My 20 '13
- Power plant of the Madison avenue building. N. Y. T. Wilson. *Il plan Power* 38:2-4 Jl 1 '13
- Power plant of the Otis building, Chicago. A. R. Maujer. *Il plan Power* 38:42-8 Jl 8 '13
- Power plant of Woolworth building. T. Wilson. *Il plans Power* 37:884-9 Je 24 '13
- Power-plant vibration. H. G. Gibson. *diags Power* 38:481 S 30 '13
- Power-plant vibration and methods of isolation. F. H. Davies. *diags Power* 38:247-9 Ag 12 '13
- Power plants of textile mills. J. A. Stevens. *plans Ind Eng* 13:7-12 Ja '13
- Power plants of textile mills; discussion of paper by J. A. Stevens. *Am Soc M E J* 35:632-6 Ap '13
- Scientific management in isolated-plant operation. P. R. Moses. *Eng M* 44:714-20 F '13
- Scientific management in power-plant operation. P. R. Moses. *Il Eng M* 44:884-93 Mr '13
- See also Cooling water; Electric plants; Gas power plants; Hydro-electric plants; Steam plants

Inspection

- Systematic inspection. *Power* 37:193-4 F 11 '13
- Power rates. See Electric power—Rates; Power cost

Power stations. See Power plants**Power transmission**

- Power transmission by compressed air. G. Barr. *Power* 37:296-7 Mr 4 '13
- Power transmission efficiency. C. Reese. *Iron Age* 91:1209 My 15 '13
- Power transmission from the coal mine. *Eng Rec* 67:482 My 3 '13
- Safeguarding of overhead transmission. F. A. Barker. *diags Ind Eng* 13:253-6 Je '13
- Safeguarding overhead transmission. *diags Ry & Eng R* 53:897-8 S 20 '13
- See also Air compressors; Belting; Compressed air; Electric distribution; Electric driving; Electric transmission; Gearing; Hydraulic transmission; Machinery; Power plants; Pulleys; Rope driving; Shafting

Power unit. See Myriawatt**Precious metals**

- Quantitative determination of the precious metals—gold, silver and platinum. Trenkner. *Met & Chem Eng* 11:567-8 O '13

See also Gold; Silver**Precious stones**

- New international carat of two hundred milligrammes. G. F. Kunz. *Sci Am S* 76:82-3, 88-9 Ag 9-16 '13

See also Diamonds**Premium wage system**

- Casting cleaners' wages on the premium basis. A. W. Gregg. *Foundry* 41:183-4 My '13
- Cleaning castings by the premium system; the application of the bonus wage plan. A. W. Gregg. *Iron Tr R* 52:571-3 Mr 6 '13
- Packard motor car company's production system; records, time studies, etc. O. J. Abell. *Iron Age* 91:1173-6 Je 19 '13
- Premium, piece work, and the expense burden. A. H. Church. *Eng M* 46:7-18 O '13
- Premium system at Watertown (Mass.) arsenal. *Iron Age* 91:173-5 Ja 9 '13

Premium wage system. *Continued.*

Premium system in a steel foundry: a weight basis for rates in the foundry cleaning room. G. A. W. Gregg. Eng M 44:776-8 F '13

See also Bonus system

Preservation of wood. *See* Wood preservation

Pressed fits. *See* Fitting (engineering)

Presses

Automatic stop double-crank press. il Iron Age 92:80 JI 10 '13

Automobile side frame press. il Iron Age 91:1166-7 My 15 '13

Back-gear power press no. 6-13. il Iron Age 91:529 F 27 '13; Ind Eng 13:224 My '13

Bulldozer in railway shops: examples of two-piece dies used successfully on this type of machine. L. D. Freeman. il plans Am Eng 87:77-9 F '13

Heavy pattern open back power press. il Iron Age 92:186 JI 21 '13

How to calculate the power of a press. W. L. Cathcart. il Mach 19:725-6 My '13

Positive acting press safety devices. il Iron Age 92:20-1 JI 3 '13

Standardized press attachments. il Iron Age 92:183 JI 24 '13

See also Dies; Hydraulic machinery; Punching machinery; Sheet metal work

Presses, Drawing

Double-action toggle drawing press. il Iron Age 92:398 Ag 21 '13

Double-crank toggle drawing press. il Iron Age 92:175 JI 24 '13; Ind Eng 13:440 O '13

Toledo drawing press. il Mach 19:733-4 My '13

Presses, Hydraulic. *See* Hydraulic machinery

Presses, Printing. *See* Printing presses

Pressure

Mean effective pressures. M. A. Ticker. Power 38:789 D 2 '13

Pressure gages

Ashton wheel press recording gage. il Ry Age (Mech ed) 87:447 Ag '13

Blonck boiler efficiency meter. il plan Ind Eng 13:179-81 Ap '13

Bristol's recording differential pressure gages. il plan Ind Eng 13:177-9 Ap '13; Same. il plan Met & Chem Eng 11:222-3 Ap '13; Same. Mach 19:659-60 Ap '13; Same cond. Elec W 61:693-4 Mr 29 '13; Iron Age 91:942 Ap 17 '13; Power 38:11-2 JI 1 '13

Floot-type recording differential-pressure gage. il diag Am Mach 38:879 My 22 '13; Elec W 61:1189 My 31 '13; Met & Chem Eng 11:296 My '13; Ind Eng 13:268-9 Je '13; Power 38:110 JI 15 '13

New recording differential pressure gage. plan Eng N 69:833 Ap 24 '13

Reading the oil pressure gauge. Automobile 28:1205-6 Je 12 '13

Presswork. *See* Printing, Practical—Presswork

Prest-O-Lite company, Indianapolis

New plant. il plan Iron Age 92:489-95 S 4 '13

Preventive medicine. *See* Medicine, Preventive

Prices

Conditions in steel trade causing adoption of extra prices for special sizes or qualities. J. L. Replegle. Iron Age 92:978-80 O 30 '13

Danger of a distributing trust. Sci Am 109:87 Ag 2 '13

Evils of price cutting. Sci Am 109:111 Ag 9 '13

Future contract prices. A. Del Mar. Eng M 46:1-6 O '13

Future prices of commodities and materials. A. Del Mar. diags Sci Am 109:137 D 6 '13

How the consumer is affected. E. A. Stuart. Sci Am 109:127 Ag 16 '13

How the retailer and the public benefit by price maintenance. C. R. Stevenson. Sci Am 109:31 JI 12 '13

Price fixing and competition. Sci Am 109:87 Ag 2 '13

Price fixing by a monopoly and price fixing by a single manufacturer. W. Kaempfert. Sci Am 108:566 Je 21 '13

Price maintenance and modern merchandising. W. Kaempfert. Sci Am 109:20 JI 5 '13

Price maintenance and the Supreme court decision. Sci Am 108:508 Je 7 '13

Price protection distinguished from trust control. L. D. Brandeis. Sci Am 109:56 JI 19 '13

Prices and rates. Eng M 46:95-6 O '13

Prices and the ultimate consumer. Sci Am 109:7 JI 5 '13

Supreme court of the United States on price maintenance. Sci Am 108:545 Je 14 '13

What is the selling price? R. H. Flug-Felder. Dom Eng 65:45-6 O 11 '13

See also Food—Prices

Prime movers. See Engines**Prince Rupert, British Columbia**

Real Prince Rupert. Arch Rec 34:94 JI '13

Printers

Apprentice printers' technical club. W. E. Stevens. *See* monthly numbers of the Inland printer

Chairman of the chapel. W. Bromley. Inland Ptr 52:49-52 O '13

From ad-man to pastor: Rev. Joseph S. Morris. por Inland Ptr 51:60-1 Ap '13

Printers of note—the Stephens. W. C. Eleloch. Inland Ptr 51:524-5 JI '13

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See also Aluminotypes; Apprentices; Capitalization; Claude process; Color printing; Editing; Electrotyping; Printing, Practical; Printing as a profession; Printing machinery; Printing offices; Printing presses; Stereotyping

Bibliography

Literature of typography. H. L. Bullen. Inland Ptr 50:678-82, 836-41; 51:56-9, 214-6, 358-61, 518-20, 692-3, 857-8, 52:72-5, 233-5, 396-9 F-D '13

Exhibitions

Notes on the National printing and advertising exposition, New York. Inland Ptr 51:295-6 My '13

History

Evolution, invention and progress of printing. W. E. Stevens. Inland Ptr 50:701-2, 857-8; 51:77-9 F-Ap '13

Bibliography

Histories of printing. H. L. Bullen. Inland Ptr 52:72-5, 233-5, 396-9 O-D '13

Specimens

English contributions to a designer's scrapbook. H. L. Gage. il Inland Ptr 51:362-5 Je '13

Specimens. F. J. Trezise. *See* monthly numbers of the Inland printer

Study and teaching

Why apprentices need supplemental instruction. Inland Ptr 50:576 Ja '13

Montenegro

Printing in Montenegro in the 15th century. C. A. Hartman. Inland Ptr 50:522-3 Ja '13

New York

Oldest job-printing office in New York. H. L. Bullen. Inland Ptr 50:519-21 Ja '13

Printing, Practical

Offset printing. R. O. Vandercook. Inland Ptr 50:538-9 Ja '13

Systematic tie-up. B. B. Edell. il Inland Ptr 52:220-2 N '13

See also Color printing; Electrotyping; Linotype; Printing machinery; Printing offices; Printing presses; Proofreading; Type; Typesetting

Costs

Basis for estimating on printing. F. W. Baltes. Inland Ptr 52:286-7 N '13

Cost and method. B. Daniels. *See* monthly numbers of the Inland printer

Distribution of shop expenses. J. A. Singler. Inland Ptr 51:567-9 JI '13

Printing, Practical—Costs—Continued.

- How about distribution? R. T. Porte. Inland Ptr 51:281 My '13
 Rational system for measuring composition. E. B. Passano. Inland Ptr 51:595-7 Jl '13
 Sold for a dollar—what did it cost? R. T. Porte. Inland Ptr 50:733-4 F '13

Estimates

- Ethics in estimating. B. Daniels. Inland Ptr 51:108 Ap '13
 Good estimator. B. Daniels. Inland Ptr 51:728-9 Ag '13

Presswork

- Pressroom. See monthly numbers of the Inland printer
 Up-to-the-minute pressroom. New York Times. S. H. Horgan. il Inland Ptr 50:884 Mr '13

Printing as a profession

- Printing-office as a vocational school. W. H. Wright. Inland Ptr 51:221-2 My '13

Printing costs. See Printing, Practical—Costs**Printing machinery**

- Machine recorders and printing machinery. G. F. Card. diags Inland Ptr 51:571-5 Jl '13
 Machines for printing railroad tickets. il Sci Am 108:249 Mr 15 '13

See also Linotype; Printing presses

Printing offices

- Erection work on a heavy printing house: Hill publishing co. il Eng N 70:1298-9 D 25 '13
 Motor drive in a modern printing plant: Commercial pte. co., Akron. O. M. C. Turpin. il Inland Ptr 51:532-3 Jl '13

Fiction

- Unrequited service. il Inland Ptr 51:49-54 Ap '13

Management

- Advertising. M. Gross. Inland Ptr 50:521-5 Ja '13
 Advertising for the printer. C. W. Hoyt. Inland Ptr 50:525-7 Ja '13
 Collecting bills for printing. E. Dash. Inland Ptr 50:864 Mr '13
 Cost and method. B. Daniels. See monthly numbers of the Inland printer
 Economical selling for the printer. C. W. Hoyt. Inland Ptr 50:692-3 F '13
 Making use of stock off-cuts. D. Kimball. Inland Ptr 51:223 My '13
 Opportunity for the small printer. G. D. Crain, jr. Inland Ptr 51:842-5 S '13
 Order blanks. Inland Ptr 52:418-9 D '13
 Printers and parcels post. G. D. Crain, jr. Inland Ptr 51:541-2 Jl '13
 Reaching the public through printing. W. T. O'Donnell. Inland Ptr 51:406-8 Je '13
 Shop efficiency. T. Facey. Inland Ptr 51:734-5 Ag '13
 System for the country office. L. Lester. Inland Ptr 51:520-2 Jl '13
 Two kinds of competition. A. W. Michener. Inland Ptr 51:279 My '13
 Where are the profits? J. Wetzel. Inland Ptr 51:118-9 Ap '13
 Working together. T. Facey. Inland Ptr 51:543-5 Jl '13

Printing presses

- Proper packing of cylinders. G. V. Oremus. Inland Ptr 51:891-2 S '13
 Tools used in making printing presses. R. Mawson. il Am Mach 38:719-24 My 1 '13

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Prisons

- Modern city jail for Salt Lake City, Utah. plans Munic Eng 45:277-9 S '13

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- Painting the wonders under the sea. C. M. Carroll. il Sci Am 108:179 F 22 '13

Producer gas. See Gas manufacture and works; Gas producers**Production**

- Political economy of production. H. Le Chatelier. Ind Eng 13:197-200, 257-8, 260 My-Je '13

- Production lists of Graham mfg. co., Providence. R. I. Mach 19:524 Mr '13

Professional ethics

See also Engineering ethics

Professions, Choice of

- Industrial need of technically trained men. A. B. Quincy. Sci Am 109:42 Jl 12 '13

Profiling machines. See Cutting machines**Profit**

- Apportionment of profits of building and loan associations. G. G. Scott. J Account 16:350-7 N '13

See also Interest

Profit sharing

- Profit sharing. Am Mach 38:749-50 My 1 '13
 Profit sharing by Washington railway & electric company. Washington, D. C. Elec Ry J 41:87 Ja 11 '13
 Profit-sharing plan of the Washington railway & electric company. W. F. Ham. Elec Ry J 42:814-5 O 16 '13
 Youngstown sheet & tube company's plan of distributing a surplus. Iron Age 92:1115 N 13 '13

Projectiles

- Armor-piercing projectiles. Iron Age 92:669-70 S 25 '13
 Bomb-dropping in the Balkans. Sci Am 109:278 O 11 '13
 Fighting in the air. C. Dienstbach. Sci Am 109:86 Ag 2 '13
 Manufacturing armor-piercing shells in Spain. il Iron Tr R 53:542-4 S 25 '13
 Night attacks in modern warfare: shells that illuminate the enemy. H. Bannerman-Phillips. il Sci Am 109:282 O 11 '13
 Progress in military explosives. W. J. Hawkins. il Eng N 69:20-2 Ja 2 '13

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- Costly tricks of style. Inland Ptr 52:373-5 D '13
 Proofreader versus writer. F. H. Teall. Inland Ptr 51:722-3 Ag '13
 Proofroom. F. H. Teall. See monthly numbers of the Inland printer
 Proofrooms of the greater New York newspapers. C. A. Hartman. il Inland Ptr 52:209-15 N '13
 Range and limits of proofreading. F. H. Teall. Inland Ptr 50:559-60 Ja '13
 What proofreaders should not correct. F. H. Teall. Inland Ptr 51:269 My '13
See also Capitalization; Compound words; Editing; Punctuation; Word division

Propellers

- Calculations for strength of propeller blades and studs. R. M. Fotheringham. diag Int Marine Eng 18:262-3 Je '13
 Casting a 27,000 pound manganese bronze propeller wheel. W. R. Dean. il Metal Ind n 3 11:71-3 F '13
 Design of propellers for geared turbines. P. Doig. Int Marine Eng 18:435-7 O '13
 Empirical method of screw propeller design. P. Doig. Int Marine Eng 18:242-5, 302-5 Je-Jl '13
 Laying out propellers. il diags Int Marine Eng 18:399-400 S '13
 Pendulum propeller rudder: an oscillating substitute for the screw. H. C. Vogt. il Sci Am S 75:325-8 My 24 '13
 Propeller shafts—how to preserve and how to protect them. Int Marine Eng 18:264 Je '13
 Shallow draft tug fitted with six propellers. F. M. Van Brakel. Int Marine Eng 18:473-4 N '13
 Towboat propeller wheels. C. S. Linch. Int Marine Eng 18:359-60 Ag '13

See also Naval architecture; Ship propulsion

Propellers, Aeroplane. See Aeroplane propellers**Property**

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Property, Intellectual. See Patents

Prospecting

Amending mining laws, C. J. Fry, Eng & Min J 95:483-4 Mr 1 '13

Churn drilling in southwestern Wisconsin, W. F. Boericke, il Eng & Min J 96:395-7 Ag 30 '13

Searching for ore shoots in veins, Eng & Min J 95:941-4 My 10 '13

What the Forest service offers the prospector, L. A. Palmer, Eng & Min J 95:1011-2 My 17 '13

See also Assaying; Divining rod; Mines and mineral resources; Ore sampling

Protective relays. *See* Electric protective apparatus

Providence, Rhode Island

Railroads

Express and freight traffic in Providence, il Elec Ry J 41:574-7 Mr 29 '13

Rapid transit

Recent improvements in the electric railway system of Providence, R. I. il plan Elec Ry J 42:56-62 Jl 12 '13

Provo, Utah

Water supply, il plan Eng Rec 67:325 Mr 22 '13

Psychology, Educational

Pedagogical laboratories: how children are studied in a Russian laboratory, P. R. Radosavljevich, il Sci Am 109:161-2 Ag 30 '13

Teaching from the child's point of view: a new science created by Prof. Ernst Meumann, P. R. Radosavljevich, il Sci Am 109:141 Ag 23 '13

Psychrometry

Chart for use in connection with wet and dry bulb thermometers in making psychrometric determinations, C. P. Linville, Am Inst Min E Bul 52:2533-6 O '13

Public accountants. *See* Accountants, Public

Public accountants, American association of. *See* American association of public accountants

Public baths. *See* Baths, Public

Public buildings

Municipal buildings, Springfield, Mass, Pell & Corbett architects, il Arch & Bldg 45:481-6 D '13

New building for the Bureau of engraving and printing, Washington, D. C. F. W. Lepper, il plans Eng N 70:335-8 Ag 21 '13

New City Hall of San Francisco, il plan Munic Eng 45:419-23 N '13

Our earliest civic center: the Independence hall group in Philadelphia, T. Brabazon, il Arch Rec 34:1-19 Jl '13

Public works in the Philippine Islands under the American régime, H. F. Cameron, il Eng Rec 68:174 Ag 16 '13

Sculptor of monumental architecture: work of Adolph A. Weinman, C. H. Dorr, il Arch Rec 33:518-32 Je '13

State education building, Albany, N. Y. il plan Arch & Bldg 45:173-81 My '13

See also Court houses; Capital buildings; Library architecture; Municipal centers; Post-office buildings; Public comfort stations; Schoolhouses

Public comfort stations

Chicago in need of public comfort stations, Dom Eng 63:346-8 Je 21 '13

Chicago women advocate comfort stations, Dom Eng 63:69 O 18 '13

Dallas, Texas, comfort station for women, il Dom Eng 64:176-8 Ag 16 '13

Kansas City, Mo., public comfort stations, il plan Dom Eng 62:2-7 Ja 4 '13

Pasadena, Cal., women's comfort stations, A. C. Shaver, il plans Dom Eng 63:210-1 My 21 '13

St. Louis, Mo., public comfort stations, J. Graham, il plans Dom Eng 63:26-8 Ap 12 '13

Trenton, N. J., public comfort station, il plan Dom Eng 63:68 O 18 '13

Public health

American public health assn. 41st annual convention, Colorado Springs, Sept., 1913; abstracts of papers, Eng Rec 63:293-7 S 13 '13

Life conservation, Sci Am S 76:39 Jl 19 '13

Prevention of disease versus cost of living, T. F. Harrington, Sci Am S 75:402-3 Je 28 '13

Regulation on sanitation as related to public carriers, W. C. Recker, Elec Ry J 12:853-4 O 17 '13

See also Dust removal; Public comfort stations; Sewage disposal; Smoke prevention; Ventilation; Water pollution; Water supply

Study and teaching

Harvard-technology school for health officers, Eng N 70:430 Ag 28 '13

Public health laws

Andy Piper's dream of a state sanitary code, Dom Eng 64:155-6, 217-8 Ag 9, 23 '13

Public lands

Public land withdrawals, H. J. Hohl, Eng & Min J 96:1031-5 N 29 '13

See also Coal lands; Mineral lands

Public playgrounds. *See* Playgrounds

Public service commissions

Appointment of consulting engineers on public-service commissions, Eng Rec 68:545 N 15 '13

Commission control of public utilities, Elec W 62:531-3 S 13 '13

Discussion of public-utility regulation and accounting methods, Elec W 62:679-82 O 4 '13

Engineer members for the New York public service commissions, Eng N 69:271-2 F 6 '13

Engineers on public service commissions, Eng Rec 67:168 F 8 '13

Functions of a technical staff in the regulation of public utilities, W. D. Pence, Eng Rec 67:260-2 Mr 8 '13; Same cond. Elec W 61:489 Mr 8 '13

Functions of public service commissions, Elec Ry J 42:300 Ag 23 '13

Hale and Olmsted on public utilities, Elec Ry J 41:555-6 Mr 22 '13

Home rule versus state control of Illinois public utilities, Elec W 61:1352 Je 21 '13

How the Illinois Legislature passed the bill for a utilities commission, Elec W 62:5-6 Jl 5 '13

Illinois public utilities commission created, Elec W 61:1401-2 Je 28 '13

Missouri bill, Elec Ry J 41:556-7 Mr 22 '13

Ohio public service commission promulgates new rates, rules and regulations for central station hot water heating, Heat & Ven 10:33-4 My '13

Pennsylvania new public service law, Ry Age 55:238-9 Ag 8 '13

Public service commission news. *See* weekly numbers of the Electrical review and western electrician; Electrical world

Public-service regulation as exemplified by Wisconsin commission, Elec W 61:662-3 Mr 29 '13

Public service regulation as exemplified by Wisconsin commission, Elec Ry J 41:577 Mr 29 '13

Public utilities legislation, Ry & Eng R 53:266-7 Mr 22 '13

Rate regulation by commissions, Elec W 62:410-1 Ag 30 '13

Recommendations of governors on public utilities, Elec W 61:83-4, 133-4 Ja 11-18 '13

Regulation of utilities by commission, H. Erickson, Ry Age 54:755-9 Mr 28 '13

Relation of the Bureau of standards to commissions, Elec W 62:941-2 N 8 '13

Two epochs of rate regulation, W. J. Norton, Elec W 62:414-5 Ag 30 '13

West Virginia public utility bill, Elec Ry J 41:1082-3 Je 14 '13

Wisconsin commission's revised set of rules and regulations relative to the standard of gas and electric service, Elec W 62:417 Ag 30 '13

See also Government regulation of industry; National association of railway commissioners; Public service corporations

Public service corporation of New Jersey

Annual report, 1912, Elec Ry J 41:603-4 Mr 29 '13

Public service corporation of New Jersey—Cont.
Public service publicity work in Newark, N. J. Elec Ry J 41:806-8 My 3 '13

Public service corporations

Byllesby on centralization of public-utility management. Elec W 61:132-3 Ja 18 '13
Comparative earnings of public utilities. Elec Ry J 41:118-9 Ja 18 '13
Conference of public policy committees of National Elec. Light Assn. and Am. Elec. Ry. Assn. Elec W 61:384 F 22 '13
Contention over depreciation fund in attack on Cincinnati Union gas & electric co. lease. Elec W 62:6-7 J1 5 '13
Co-operation of associations: National Elec. Light Assn. and Am. Elec. Ry. Assn. Elec W 61:381-2 F 22 '13
Corporations and the community. Elec Ry J 41:140-1 Ja 25 '13
Denver water case. Eng Rec 68:3 J1 5 '13
Depreciation and public service regulation. R. H. Whitten, Eng N 69:942-7 My 8 '13
Depreciation in valuations. E. A. Saliers. J Account 15:106-16 F '13
Education of employees. L. Galloway. J Account 15:35-52 Ja '13
Essentials of public service accounting. A. F. Elkins. Elec Ry J 42:1276 D 20 '13
Fair rate of return for public utilities as affected by unearned increment. Eng N 69:858-60 Ap 24 '13
Fundamentals of valuation of public utilities. Ry Age 55:444-6 S 12 '13
Midyear banquet of Am. Elec. Ry. Assn., 1913. Elec Ry J 41:206-8 F 1 '13
Mistaken popular notions concerning public service corporations. F. Strauss. Elec Ry J 41:190-2 F 1 '13
Preparation for public-utility regulation. Eng Rec 68:283 S 13 '13
Public service publicity work in Newark, N. J. Elec Ry J 41:806-8 My 3 '13
Public utilities and public policy; Pres. Vail's views. Eng Rec 67:311 Mr 22 '13
Regulation of public utilities. W. J. Hagenah. Elec W 61:27-8 Ja 4 '13
Regulation of public utilities in Wisconsin. H. Erickson. Ry & Eng R 53:300-3 Mr 29 '13
Regulation; views of John B. Olmstead. Ry Age 54:440-1 Mr 7 '13; Same. Ry & Eng R 53:245-6 Mr 15 '13
Report of Franchise committee of National municipal league. Elec Ry J 42:1107-8 N 22 '13
Second annual convention of Gas, electric and street Ry. Assn. of Oklahoma, Oklahoma City, May, 1913. Elec W 61:1023-4 My 17 '13
6th annual convention of Arkansas assn. of public utility operators, Little Rock, May, 1913. Elec Ry J 41:888-9 My 17 '13; Elec W 61:1025-7 My 17 '13
Southwestern electrical and gas assn. papers presented at convention, May, 1913. Elec W 61:1130-1 My 31 '13
With the blinders off, by a former railway manager. Elec Ry J 42:184-5 Ag 2 '13
See also Carriers; Depreciation; Electric service companies; Gas companies; Municipal ownership; Public service commissions; Railroads; Street railroads; Telephone companies; Valuation

Law

Hearing on Pennsylvania utilities bill. Elec Ry J 41:821 My 3 '13
Illinois public utility law. Elec Ry J 42:92-3 J1 19 '13
Indiana public utility law. Elec W 61:557-9 Mr 15 '13
Indiana public utility measure. Elec Ry J 41:515-6 Mr 15 '13
Messages of the governors. Elec Ry J 41:74-5, 160-1 Ja 11, 25 '13
Model public utility bill of National civic federation. E. McMillin. Elec Ry J 42:1238 D 13 '13; Same. Elec W 62:1199-1200 D 13 '13
New public-utility laws in Indiana and Missouri. Eng N 69:706 Ap 10 '13
Pennsylvania public service company law. Elec Ry J 42:194-5, 210-1 Ag 2-9 '13

Pennsylvania public service company law. Ry Age 55:379-81 Ag 29 '13
Pennsylvania public-service law. Eng N 70:431-2 Ag 28 '13
Pennsylvania utilities bill. Elec W 62:120 J1 19 '13
Present tendency of public service regulation. R. McCulloch. Elec Ry J 42:858-60 O 17 '13
Present tendency of public utility laws and regulations. F. Hedley. Elec Ry J 42:860-1 O 17 '13
Provision of the Maine utility bill. Elec Ry J 41:688 Ap 12 '13
Public utilities law of Maine. Elec W 61:1029-30 My 17 '13
Rates and rate-making under Wisconsin public-utility law. H. Erickson. Eng Rec 68:42-3 J1 12 '13
Recommendations of governors on public utilities. Elec W 61:83-4, 133-4 Ja 11-18 '13
Some aspects of the model public utility bill. W. D. Kerr. Elec Ry J 42:868-9 O 17 '13

Rates

Original cost versus replacement cost as a basis for rate regulation. R. V. Hayes. Ry Age 55:450-2 S 12 '13
Relation of surplus to rate-making. Elec W 62:942-4 N 8 '13
Various phases of municipal rate-making frankly discussed at Chicago. Elec W 62:21-3 J1 5 '13

Public speaking

Public speaking in the engineering school. Iron Age 91:1187 My 15 '13

Public utilities. See Public service corporations

Public works

Appointing commissions for directing public works. Eng N 69:318 F 13 '13
Conservation of water resources for inland navigation. A. H. Scherzer. Munic Eng 44:429-30 My '13
Flood prevention, and a government department of public works. I. Randolph. Eng N 69:878 Ap 24 '13
General principles applicable to public construction contracts. Eng N 70:1017 N 20 '13
Government and public works of Delhi, India. T. Saikield. Eng N 69:1095-7 My 22 '13
Proposed federal department of public works. Eng Rec 67:455 Ap 26 '13
Proposed national department of public works. Ry & Eng R 53:369 Ap 19 '13
Proposed national department of public works. I. Randolph. Ry & Eng R 53:676-7 J1 12 '13
Relation of the engineer to public improvements. J. A. Benschel. Stevens Ind 30:357-62 O '13
Year's experience with the Boston public works department organization. Eng N 69:1048-9 My 22 '13
See also Irrigation; Municipal engineering; Public buildings; Reclamation service; Rivers—Regulation; Roads; also names of countries and cities, subhead Public works, e. g. Philippine Islands—Public works

Publicity

Public service publicity work in Newark, N. J. Elec Ry J 41:806-8 My 3 '13
Publicity work by engineering societies. Eng N 69:1134 My 29 '13
Publicity work of the Cleveland engineering society. C. E. Drayer. Eng N 69:1137 My 29 '13
Purchasing agent and publicity: two neglected factors in price stabilization. J. C. Jay, jr. Iron Age 91:310-1 Ja 30 '13
See also Advertising

Publishing

Book title page dates. Eng & Min J 96:1038 N 29 '13
Records for the works publication bureau. A. D. Williams. Iron Age 91:1066-9 My 1 '13

Puddling

Chemical reactions of the puddling process. T. Turner. Iron Age 91:888-9 Ap 10 '13
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Puddling furnaces

Roe mechanical puddling process. *Iron Age* 91:1069 My 1 '13

Pujo committee. See Money trust investigation**Pulleys**

Aligning pulleys for quarter-turn belt drives. M. H. Ball. *diag Mach* 19:55-6 S '12

Crown face pulleys. G. N. Van Derhoef. *Mach* 19:607-8 Ap '13

Design of pit head pulleys. J. S. Watts. *diag Mach* 19:511-2 Mr '13

Magnetized pulleys for conveyor belts. *diag Eng & Min J* 95:424 F 22 '13

Making the Philips pressed steel pulley. C. L. Lucas. *il Mach* 20:175-80 N '13

Power transmitting capacities of pulleys. J. S. Leese. *Power* 37:628 My 6 '13

Pulleys for high-speed transmission. *Ind Eng* 13:27 Ja '13

See also Belting; Power transmission; Rope driving; Shafting

Pullman cars. See Sleeping cars**Pulmotor**

Mechanical resuscitation: action and operation of the pulmotor in mine-rescue work. H. E. Bertling. *il Eng M* 45:731-2 Ag '13

Oxygen fed and driven device for artificial respiration. *il Sci Am* 108:117 F 1 '13

Scientific American gold medal awarded to pulmotor by American museum of safety. *Colliery* 33:484-5 Ap '13

Pulp wood. See Wood pulp**Pulsograph**

New device for locating leaks in water mains. *il Eng N* 70:515 S 11 '13

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Acres irrigated or drained by centrifugal pumps. *Eng N* 69:1072 My 22 '13

Balancing devices for centrifugal pumps. *diag Eng N* 70:722 O 9 '13

Balancing devices for centrifugal pumps. A. V. Mueller. *diags Eng N* 70:490-4 S 11 '13

Boiler-feed pumps. A. Williams. *plan Elec W* 61:202 Ja 25 '13

Centrifugal pump for molten lead. J. F. Miller. *Eng & Min J* 95:386 F 15 '13

Centrifugal-pump specifications. C. A. Carpenter. *Eng M* 44:345-7 D '12

Centrifugal pump with heliocoidal impeller. C. V. Kerr. *il Am Soc M E J* 35:1493-1524 O '13

Centrifugal pumps. H. De Huff. *il Met & Chem Eng* 11:469-71 Ag '13

Corrosion and erosion. H. M. Graham. *Power* 38:307-8 Ag 26 '13

Deep well pump problem. W. Chuisana. *plan Power* 37:611 Ap 29 '13

Design of volute chambers for centrifugal pumps. *diag Ind Eng* 13:317 J1 '13

Economy of pumping with gasoline diaphragm pump. C. R. Anthony. *Munic Eng* 45:48 J1 '13

Feed water heating and pumping. *plan Power* 37:146-8 F 4 '13

Feed water heating and pumping. F. C. Wight. *Power* 37:390 Mr 18 '13

40,000,000-gal. direct-acting explosion pumps at Chingford, England. *plans Eng N* 69:764-6 Ap 17 '13

Functions and design of air chambers. C. G. Richardson. *il Power* 38:70-2 J1 8 '13

Graphical method for computing pumping problems. *Ry & Eng R* 53:330-1 Ap 5 '13

Heliocoidal impeller centrifugal pump. C. V. Kerr. *il Iron Age* 92:898-9 O 23 '13

Humphrey pumps for London water-works. *plans Power* 37:602-4 Ap 29 '13

Internal-combustion pumps of the Humphrey type. *diags Eng Rec* 68:sup 50 D 27 '13

Investigation of flow processes in the ascending pipe of the Mammoth pump. K. Hoefer. *Am Soc M E J* 35:1431-4 S '13

Large pumps of acid resisting metal: molding and casting of parts of a system for pumping sulphur waters. W. J. Reardon. *il Metal Ind n s* 11:26-7 Ja '13

Low lift centrifugal pumps of high efficiency. *il Eng & Min J* 96:929-30 N 15 '13

Luitwieler double-acting triplex pump. *il diags Power* 38:53 J1 8 '13

Modern pumping units for steel mills. C. A. Tupper. *il Power* 37:652-3 My 6 '13

Momin's reversible rotary pump with tight joints. *diags Automobile* 28:1121 My 29 '13

Neumann involute pump and its properties. *diags Am Soc M E J* 35:537-9 Mr '13

New Bundy tilting hot-water pump. *il plan Power* 37:595-6 Ap 29 '13

New design of centrifugal dredging pump. H. S. New. *il Eng N* 69:31-2 Ja 2 '13

New type of centrifugal fire pump. *plans Automobile* 28:506-7 F 20 '13

New type of non-pulsating pump. *il diag Iron Age* 91:1109 My 8 '13

New use for Atlantic diaphragm pumping engine. *Munic Eng* 44:152 F '13

Novel control of steam for pump. R. O. Richards. *diag Power* 38:239 Ag 12 '13

Performance of direct-explosion pumps in England. *Eng Rec* 68:412 O 11 '13

Piping mine-pump air exhaust. W. L. Houston. *plan Power* 37:577-8 Ap 22 '13

Pittsburgh's large pumping engine. *il Power* 38:597 O 28 '13

Placing a large suction pipe. J. F. Nagle. *il plan Power* 37:270 F 25 '13

Power machinery of the American steel industry. R. L. Streeter. *il Eng M* 44:211-8 N '12

Pump building plant at Alameda. Cal. F. A. Stanley. *il Am Mach* 38:861-5 My 22 '13

Pump-valve leakage. *diag Power* 38:742-1 N 25 '13

Pump with hydraulically operated suction valves. H. B. Goodwin. *diag Power* 38:99-100 J1 15 '13

Pumping and heating of oil fuel. R. T. Strohm. *diags Elec W* 62:650-2 S 27 '13

Pumping water for locomotives on rack railway up Mount Washington. C. B. Edwards. *Eng Rec* 68:690 D 20 '13

Pumps and the principles of atmospheric pressure. F. W. Tower. *il Dom Eng* 62:220-2 F 22 '13

Recent activity in the explosive pump art. *il Sci Am* 108:496-7 My 31 '13

Recent developments in pumping machinery. *Ry Age* 54:724-5 Mr 21 '13

Reciprocating pump curves. A. M. Daniels. *Power* 37:488-9 Ap 8 '13

Seagrave pump. B. K. Black. *diag Munic Eng* 45:92 J1 '13

Sidewalk gasoline pumps draw transient trade. *diags Automobile* 29:650-4 O 9 '13

Slippage of reciprocating pumps. M. K. Baer. *Power* 37:482-3 Ap 8 '13

Slippage of reciprocating pumps. T. McMillan. *Power* 37:792-3 Je 3 '13

Starting of centrifugal pumps. A. Schacht. *il Am Soc M E J* 35:323-5 F '13

Suction lifter for use with punch presses. *il Elec W* 62:1179 D 6 '13

Test of a two-stage turbine pump. A. A. Potter and W. W. Carlson. *Power* 38:83 J1 15 '13

Theoretical and graphical study of centrifugal pumps. J. Dejust. *diag Am Soc M E J* 35:1697-1701 N '13

Theory of centrifugal pumps. R. L. Daugherty. *diag Power* 38:79-83 J1 15 '13

Tom Hunter, hoisting engineer: interview. W. O. Rogers. *il Power* 38:77-8, 459-61 J1 15, S 30 '13

Triple-plunger artesian well pump. *il plan Eng N* 69:424 F 27 '13

Working range of centrifugal and Pittler fire pumps. *Automobile* 28:351-2 Ja 30 '13

See also Air lift; Air pumps; Fire engines; Mine drainage; Pumping stations; Vacuum pumps; Waterworks

Pumping machinery. Electric

Auxiliary deep-well water-supply with electric pumps. *diags Eng N* 70:346-7 Ag 21 '13

Design and operating features of motor-driven pumps. C. A. Carpenter. *Elec W* 61:1309-10 Je 14 '13

Electric pumps. S. S. Walker. *Eng & Min J* 96:723 O 18 '13

Pumping machinery, Electric—Continued.

Electric pumps for University of Michigan fire protection. *il Elec W* 62:1168 D 6 '13
 Fire pump motors of alternating current type. H. P. Reed. *il Iron Tr R* 53:879-80 N 13 '13

Pumping stations

Atlantic City pumping plant. W. O. Rogers. *il plan Power* 38:876-80 D 23 '13
 Cause of difficulty in Batavia sewage pumping station. K. B. Mathes and R. L. Fox. *Eng Rec* 67:336 Mr 22 '13; Same. *Munic Eng* 44:331-2 Ap '13

Comparative economy of producer gas and steam for pumping stations. *Eng Rec* 68:262-3 S 6 '13

Compressed-air pumping plant. Meridian, Idaho. L. W. Allison. *il Power* 38:842-3 D 16 '13

Condensing-water auxiliary pump. S. H. Farnsworth. *plan Power* 37:690-1 My 13 '13
 Efficiency in the pumping station. S. G. Pollard. *Munic Eng* 41:465-7 My '13

Gas engines vs. steam for pumping. *Power* 38:788-9 D 2 '13

Irrigation pumping plant at Mercedes, Texas. *plan Eng Rec* 67:319-20 Mr 22 '13

Irrigation pumping plants. *Eng Rec* 68:53-4 JI 12 '13

Lazwell drainage-pumping plant near Burlington, Iowa. *il Power* 37:846-8 Je 17 '13

Methods of increasing pumping-plant efficiency. *Eng Rec* 67:417-8 Ap 12 '13

Mill Creek automatic pumping station, increasing output of a Utah hydroelectric plant. M. B. Lott. *il plans Elec W* 61:563-7 Mr 15 '13; Same. *Eng Rec* 67: 288-90 Mr 15 '13

Pumping equipment of municipal water purification plant. Grand Rapids, Mich. *Munic Eng* 45:240-1 S '13

Pumping plants for railway water supply. *Ry & Eng R* 53:1065-7 N 15 '13

Pumping plants of the Western water co. *Power* 38:745-6 N 25 '13

Sewage-pumping plant in Kansas City. O. L. Eltinge. *plan Eng Rec* 67:266-7 F 22 '13

See also Pumping machinery; Water supply; Waterworks

Pumps, Air lift. *See* Air lift

Pumps, Vacuum. *See* Vacuum pumps

Punched card system

Hollerith tabulating machine in the business office. S. G. Koon. *il Mach* 26:25-6 S '13

Keeping books by machine: the punched card as a saver of brain energy. H. S. McCormack. *il Sci Am* 108:194-5 Mr 1 '13

Punching

Power required for punching. L. R. Pomeroy. *Ry Age* (Mech ed) 87:372-3 JI '13

Punching effort: with data sheet supplement. *Mach* 19:589 Ap '13

Punching machinery

Large boiler plate punching machine. *il Iron Age* 91:1372 Je 5 '13

Large multiple punching machine. *il Iron Age* 92:1160-1 N 20 '13

Locating punches in tandem dies. J. Barker. *diag Mach* 19:466-7 F '13

Making a sheet-steel miter-box in the punch press. D. T. Hamilton. *il Mach* 19:840-2 JI '13

Oakes safety device for punch presses. *il diag Ind Eng* 13:527 D '13

Punching and shearing values for steel. G. C. Anthony. *diags Am Mach* 38:857-9 My 22 '13

Tools for multiple plunger presses. C. Doe-scher. *diags Mach* 19: 449-52 F '13

See also Dies

Punctuation

Punctuation. F. H. Teall. *Inland Ptr* 51:863-4 S '13

Purchasing agents

Purchasing agent and publicity: two neglected factors in price stabilization. J. C. Jay, Jr. *Iron Age* 91:310-1 Ja 30 '13

Purchasing agent's problems. I. C. Hubbell. *Iron Age* 91:438-9 F 13 '13

Purchasing departments

Central purchase and distribution of supplies for New York city: plan of W. A. Prendergast. *Eng Rec* 67:359-61 Mr 29 '13

Cincinnati's purchasing system. *Munic Eng* 45:217-23 S '13

Economical purchasing methods. *Eng Rec* 67:30 Ja 11 '13

Effect of specifications and testing of materials on the storekeeper's stock. *Ry Age* (Mech ed) 87:239-309 Je '13; Same cond.

Ry Age 54:1137-8 My 23 '13

Efficient factory purchasing system. W. Gugenheim. *Iron Age* 92:117-9 JI 17 '13

How the New York purchasing system was established. F. X. A. Purcell. *Munic Eng* 45:430-4 N '13

Purchasing department of a manufacturing organization. A. C. Ward. *Eng M* 16:349-55 D '13

Purchasing through the consulting engineer. *Eng Rec* 68:310 S 20 '13

Pure food laws. *See* Food laws

Pynson, Richard

Printers of note. W. C. Bleloch. *Inland Ptr* 52:54-5 O '13

Pyrite

Description of pyrite. L. C. Graton. *Am Inst Min E Bul* 77:751-6 My '13

Pyrometers and pyrometry

Calibration of optical pyrometers. P. D. Foote. *il Met & Chem Eng* 11:97-8 F '13

Development of a new optical pyrometer. C. G. Fisher. *il Met & Chem Eng* 11:532-3 S '13

Electric pyrometers with high resistance. *il Iron Tr R* 53:1140 D 25 '13

Foundry pyrometers. H. W. Gillett. *il Metal Ind n s* 11:24-5, 79-80, 116-7 Ja-Mr '13

High-resistance pyrometers. D. C. Draper. C. H. Wilson. *Met & Chem Eng* 11:602-3 N '13

High-resistance thermo-electric pyrometer. *il Met & Chem Eng* 11:506 O '13

Horizontal high-resistance electric pyrometer. *il Ind Eng* 13:441 O '13

Improved pneumatic pyrometer. *il Iron Age* 92:279 Ag 7 '13

Measurement of temperature by electrical means. C. B. Thwing. *Met & Chem Eng* 11:36-8 Ja '13

Micro-pyrometer. G. K. Burgess. *U S Bur Stand Bul* 9:475-8 D 15 '13

Modern methods of measuring temperature. R. S. Whipple. *il diags Sci Am S* 76:314-5 N 15 '13

Modern tool steels and high-speed tool alloys. G. S. Armstrong. *il Eng M* 46:401-15 D '13

New pyrometer for measuring the temperatures of molten metals. *il Ind Eng* 13:269-70 Je '13

Optical and radiation pyrometers. *diags Ind Eng* 13:447-9 O '13

Practical applications of temperature measurement. R. S. Whipple. *diag Sci Am S* 76:366-7 D 6 '13

Selection of thermometers for industrial plants. R. S. Whipple. *il Eng M* 46:114-6 O '13

Transformation point apparatus. *il Met & Chem Eng* 11:221-2 Ap '13

Tungsten and molybdenum—their thermal emf. E. F. Northrup. *Met & Chem Eng* 11:45 Ja '13

See also Thermo-couples

Pyrophoric alloys

Pyrophoric alloy industry. G. Martin. *Sci Am S* 76:325 N 22 '13

Pyrophyllite

Pyrophyllite in North Carolina. C. Hafer. *il Eng & Min J* 96:623-5 O 4 '13

Q

Quantity surveying

Desirability of quantity surveying in the United States. L. H. Allen. *Eng N* 70:988-9 N 13 '13

Quantity surveying—*Continued.*

- Quantity surveying for construction. Concrete Cem 3:450b O '13
 Quantity surveying in the United States. Eng N 70:877-8 O 30 '13

Quarries and quarrying

See also Blasting

Quartz tube lamps. *See* Electric lamps, Mercury vapor

Quaywalls. *See* Sea walls

Quebec (city)**Bridges**

- Adopted design of the Quebec bridge. R. Modjeski, diags Ry Age 55:553-63 S 26 '13
 Construction of new Quebec bridge piers. H. P. Borden, il Ry Age 55:365-9 Ag 29 '13
 Design of large bridges, with special reference to the Quebec bridge. R. Modjeski, il plans J Fr Inst 176:233-82 S '13; Same. Eng Rec 68:321-4, 354-6, 383-5 S 20-O 4 '13
 Designing the Quebec bridge. R. Modjeski, il Eng M 46:117-20 D '13
 Lifting the 130,000,000 pound Quebec bridge. H. F. Stratton, il Eng M 46:341-9 D '13
 Reconstruction of the Quebec bridge: a design. G. Kriwoschein, il Sci Am S 75:293-5 My 10 '13

Quicksand. *See* Excavation

Quicksilver. *See* Mercury

R

Racing. *See* Automobile racing; Yacht racing

Rack for reinforcing steel, diag Concrete Cem 3:162 O '13

Radiation

- Comparison of thirteen radiation formulas. A. C. Rogers, Heat & Ven 10:25-7 Ag '13
 Convenient secondary standard of radiation. J Fr Inst 176:219-20 Ag '13
 Nature of radiation. J. H. Jeans. Sci Am S 76:259 O 25 '13
 Radiation formula for house heating. C. F. Smith, Heat & Ven 10:21-2 Mr '13
 Radiations old and new. W. H. Bragg, il Sci Am S 75:341-2, 358-9 My 31-Je 7 '13
 Selective radiation from various substances. W. W. Coblentz, U S Bur Stand Bul 9:81-117 Mr 15 '13
 Synopsis of radiations and their characteristics: wave and corpuscular radiations. il Sci Am S 76:175-6 S 13 '13
See also Cathode rays; Heat; Light; Radioactivity; Radiography; Radiometers; Radiomicrometers; Radium; Spectra; X rays

Radiation pressure

- Radiation pressure: its nature and significance. W. C. Morris. Sci Am S 76:18-9 Jl 12 '13

Radiators

- Automatic turret machine for machining steam radiators. C. L. Lucas. Mach 20:49-50 S '13

See also Heating; Hot water heating; Steam heating

Radioactivity

- Counting atoms by scintillations. E. Marsden, il Sci Am S 75:158 Mr 8 '13
 Disintegration theory of radioactivity. Elec W 61:661 Mr 29 '13
 Evidence that sodium belongs to a radioactive series of elements. F. C. Brown. Sci Am S 75:317 My 17 '13
 Halos in minerals: markings due to radium in rocks, and their significance. J. Joly, il Sci Am S 75:132-5 Mr 1 '13
 Radiations old and new. W. H. Bragg, il Sci Am S 75:341-2, 358-9 My 31-Je 7 '13
 Radio-active manures. Sci Am S 76:27 Jl 12 '13
 Radioactivity. E. P. Adams, il Am Inst E E Pro 32:1159-1233 My '13
 Structure of the atom. J. J. Thomson, il Sci Am S 75:286-7 My 3 '13

Warning against fraudulent radioactive water. Sci Am 100:287 O 11 '13

See also Carnotite; Cathode rays; Electrons; Helium; Phosphorescence; Radiography

Radiography

Some recent developments in radiography. H. C. Snook, il J Fr Inst 175:11-13 Ja '13

Radiometers

Instruments and methods used in radiometry. W. W. Coblentz, U S Bur Stand Bul 9:7-63 Mr 15 '13

Radiomicrometers

Radiomicrometer. W. W. Coblentz, U S Bur Stand Bul 9:8-12 Mr 15 '13

Radiotelegraphy. *See* Wireless telegraph

Radium

- Chemical effects of radium rays. Sci Am S 76:112 Ag 16 '13
 Concentration of pitchblende. H. E. Wood, Eng & Min J 95:1164-5 Je 7 '13
 First pure radium salt produced in America. Eng & Min J 96:553 S 20 '13
 Length of geological epochs: radium as the clock of ages. Sci Am S 75:374 Je 14 '13
 Our radium resources. C. L. Parsons. Sci Am S 76:322-3 N 22 '13
 Preliminary report on uranium, radium, and vanadium. R. B. Moore and K. L. Kithil, il map U S Bur Mines Bul 70:1-96 '13
 Radebiff's process for radium ores. Eng & Min J 95:221 Ja 25 '13
 Radium and the evolution of the earth's crust. A. Holmes. Sci Am S 76:67 Ag 2 '13
 Radium from American carnotite. Eng & Min J 95:1106 My 31 '13
 Radium institute St. Joachimsthal. J. Hürden. Met & Chem Eng 11:601-5 D '13
 Radium production in America. E. H. Heinrichs. Eng & Min J 95:389 My 17 '13
 Uranium and radium situation. C. L. Parsons. Met & Chem Eng 11:275-6 My '13; Same. Sci Am S 75:347-5 Je 14 '13

See also Carnotite; Radioactivity

Rail. *See* Rails

Rail bonds

New rail bond, il Elec Ry J 41:260 F 8 '13

See also Rail joints

Rail failures. *See* Rails—Failures

Rail handling

- Handling second hand rails and fastenings on branch lines. P. H. Hamilton. Ry Age 55:299-300 Ag 15 '13
 Rail-handling machine for rail renewal, il Eng N 69:163 Ja 23 '13
 Rail-handling machine for rail renewals, il Eng N 70:1032-3 N 20 '13

Rail joints

- Austrian rail-joint of the wedge type, il Eng N 70:655 O 2 '13
 Cast-weld joints and steel ties in Brooklyn, il Elec Ry J 42:920-1 O 25 '13
 Mechanical and electric traction on the Paris streets. J. Boyer, il Eng M 44:65-9 O '12
 New type of rail joint for bascule and vertical-lift bridges, il diags Ry & Eng R 53:428-9 My 10 '13

See also Rail bonds; Railroads—Track; Rails; Welding

Rail laying. *See* Railroads—Track

Railroad accidents. *See* Railroads—Accidents

Railroad accounting. *See* Railroads—Accounting

Railroad bridges. *See* Bridges, Railroad

Railroad clearing house

- Plans for a railroad clearing house. Ry Age 51:90-1 Ja 17 '13
 Proposed railroad clearing house. Ry Age 54:100-3 Ja 17 '13

Railroad conductors

Conductor's authority and responsibility. E. Swergal. Ry Age 54:787 Ap 4 '13

Railroad crossings. *See* Grade crossings; Railroads—Crossings

Railroad education.

- Apprenticeship on the Illinois Central. *Am Eng* 87:249-52 My '13
 College men and the railroads: symposium. *Ry Age* (Mech ed) 87:580-2, 638-40 N-D '13
 Moving pictures in railway educational work. *Am Eng* 87:67-8 F '13
 Moving pictures in railway educational work in Georgia. D. C. Boy. *Am Eng* 87:174 Ap '13
 Pennsylvania railroad company apprentice schools. J. P. Jackson and J. W. L. Hale. *Am Inst E E* 19:32:1433-9 Je '13
 Proper aims in training for railway service. H. G. Hietzer. *Ry & Eng R* 53:563-4 Je '13
 Santa Fe apprentice instruction. R. T. Peabody. *il Ry Age* (Mech ed) 87:311-2 Je '13
 Southern Pacific's school of railroading. *Ry & Eng R* 53:1932-3 N 8 '13
 University of Cincinnati co-operative course in railway engineering. *il Ry Age* 55:296-8 Ag 15 '13
 Vocational education in connection with railroad work. W. L. Park. *Ry & Eng R* 53:467 My 17 '13
 Why don't railroads hold the college man? *Ry Age* (Mech ed) 87:523-4 O '13

Railroad employees. See Railroads—Employees**Railroad engineering**

- American railway bridge and building association meeting: abstracts of reports of committees and discussions at 23d annual convention, Montreal, 1913. *Ry Age* 55:584-93 O 24 '13
 American railway bridge and building association: reports and discussions. *Ry & Eng R* 53:392-4 O 25 '13
 American railway engineering assn.: proceedings and registration of 11th annual convention, Chicago, Mr., 1913. *Ry Age* 54:571-99, 619-33, 701-32 Mr 19-21 '13
 Finding the point of intersection of two grades and vertical curves. R. S. Beard. *Eng Rec* 68:734 D 27 '13
 14th annual convention of the American railway engineering assn., Chicago, 1913. *Elec Ry J* 41:543-8 Mr 22 '13; *Eng N* 69:640-4 Mr 27 '13; *Ry & Eng R* 53:274-85 Mr 22 '13
 Industrial need of technically trained men: the possibilities of railroad engineering. A. W. Johnston. *Sci Am* 109:292 O 11 '13
 Recommendations adopted at annual convention of Am. railway engineering assn., 1913. *Eng Rec* 67:346-7 Mr 29 '13
 Review of work of Am. railway engineering assn. as reported to annual convention, 1913. *Eng Rec* 67:321-4 Mr 22 '13
 University of Cincinnati co-operative course in railway engineering. *il Ry Age* 55:296-8 Ag 15 '13

See also Locomotives; Railroad surveying; Railroads—Construction; Railroads—Maintenance and repair; Railroads—Management; Surveying

Railroad engineers

- Civil service requirements for positions in railway valuation. *Ry & Eng R* 53:588-90 Je 21 '13

See also Locomotive engineers; also American railway engineering association

Railroad fares. See Railroads—Fares**Railroad finance.** See Railroads—Finance**Railroad gage.** See Railroads—Track**Railroad hospitals**

- Modern railway hospital and its management. R. O. Woolsey. *Ry & Eng R* 53:853-4 S 6 '13

Railroad labor. See Railroads—Employees**Railroad language.** *Ry Age* 54:377 F 28 '13**Railroad law**

- American electric railway association: report of committee on federal relations. *Elec Ry J* 42:872-3 O 17 '13
 Analysis of train-crew legislation. *Ry Age* 55:750-6 O 24 '13
 Boiler inspection and operation. F. McManamy. *Ry & Eng R* 53:522-6 Je 7 '13
 Caboose laws. *Am Eng* 87:87 F '13

- Decision on hours-of-service law in the case of the government against the Kansas City Southern. *Ry Age* 54:288 F 14 '13

Grade separation laws and requirements: abstract of 27 state laws with tabular resumé of city requirements. *Ry Age* 55:1118-21 D 12 '13

- Indicting high railway officers for manslaughter. *Eng N* 69:858 Ap 24 '13

Legislation affecting the time and manner of payment of railroad wages. A. B. Jones. *Ry Age* 55:871-2 N 7 '13

- Legislation relating to railroad operation in 1913; with tabulation. *Ry Age* 55:270 Ag 15 '13

Legislation to avoid railway strikes. *Eng N* 69:733-4 Ap 10 '13

- Maine proposed new railroad law. *Ry Age* 55:261 JI 11 '13

Massachusetts new railroad law. *Ry Age* 54:1609-10 Je 27 '13

- Minnesota rate case decision: comment. *Ry & Eng R* 53:566-7 Je 14 '13

Plague of "full crew" bills. *Ry & Eng R* 53:316-7 Ap 5 '13

- Plea against hasty legislation. *Ry Age* 55:449-50 S 12 '13

President C. S. Mellen appeals for fixed policy. *Ry & Eng R* 53:246-7 Mr 15 '13

- Railroad officials urge caution in federal safety legislation. *Ry & Eng R* 53:861-2 S 13 '13

Special committee on relations of railway operation to legislation. report no. 10. *Ry & Eng R* 53:476-7 My 24 '13; Summary of report. *Ry & Eng R* 53:1077-8 N 22 '13

- Steel passenger car and existing passenger equipment. *Ry & Eng R* 53:1040-1 N 8 '13

Train wrecks and hasty legislation. *Ry & Eng R* 53:846-7 S 6 '13

- Value of property in New York reorganization case. *Elec Ry J* 41:381-2 Mr 1 '13

See also Interstate commerce law; Public service corporations—Law; Railroads—Rates; Railroads—Valuation; Railroads and state; Street railroad law

Railroad management. See Railroads—Management**Railroad maps**

- Maps for railroad valuation. *Ry & Eng R* 53:1021 N 1 '13

Objections to the Interstate commerce commission specifications for maps and profiles for railroad valuation. *Ry & Eng R* 53:891-2 S 20 '13

- Resurvey of the Wheeling & Lake Erie. D. M. Taylor. maps *Ry & Eng R* 53:1060-3 N 15 '13

Specifications for maps and profiles for federal valuation of railroads; objections by carriers. *Eng Rec* 68:292 S 13 '13**Railroad motor cars.** See Motor cars (railroad)**Railroad rates.** See Railroads—Rates**Railroad records.** See Railroads—Records**Railroad schools.** See Railroad education**Railroad shops.** See Railroads—Shops**Railroad signals.** See Railroads—Signals**Railroad smoke inspectors' association of Chicago**

- Results of investigations. *Ry Age* (Mech ed) 87:478 S '13

Railroad surveying

- Hand signals for field parties. R. S. Beard. *diag Ry Age* 54:888 Ap 18 '13

Resurvey of the Wheeling & Lake Erie. D. M. Taylor. maps *Ry & Eng R* 53:1060-3 N 15 '13

See also Railroad maps

Railroad terminals. See Railroads—Terminals**Railroad ties**

- Adzing and boring machines. *il Ry Age* 54:1094-5 My 16 '13

Adzing and boring ties and the cost of installing plants of this kind. J. A. Lounsbury. *Ry Age* 51:172-4 Ja 24 '13; Same. *Eng Rec* 67:189-90 F 15 '13; Same. *Ry & Eng R* 53:151-2 F 15 '13

Railroad ties *Continued.*

- Baltimore & Ohio timber-treating plant, Green Spring, W. Va. F. J. Angier, *il plan* Eng Rec 67:572-1 My 21 '13; Same, Ry & Eng R 53:451-3 My 17 '13; Same, Eng N 69:1182-3 Je 5 '13
- Comparative economy of treated ties, R. J. Parker, Ry Age 54:1083-5 My 16 '13
- Comparison of zinc chloride with coal-tar creosote for preserving cross-ties, H. F. Weiss, Elec Ry J 41:151-3 Ja 25 '13; Same, Eng Rec 67:109-10 Ja 25 '13; Same, Ry & Eng R 53:81-8 Ja 25 '13; Same, Ry Age 54:105-7 Ja 24 '13
- Corrosion of spikes in ties treated with zinc-chloride, Eng N 69:270 F 6 '13
- Cross-tie data for 1911, Elec Ry J 42:269-70 Ag 16 '13
- Device for loading ties, *il diags* Ry Age 55:1181-2 D 19 '13
- Effect of metal and treated ties on track circuits, Ry Age 54:578-80 Mr 19 '13; Same, Ry & Eng R 53:433-5 My 17 '13
- Electric tie boring and spiking machine, *il* Eng N 70:596-7 S 11 '13
- Experiments in the preservative treatment of crossties, Eng Rec 67:728-9 Je 28 '13
- Experiments in the preservative treatment of red-oak and hard-maple crossties, F. M. Bond, *il U S Forest Serv Bul* 126:9-52 '13
- Galesburg tie plant of the C. B. & Q., *il plan* Ry Age 54:306-9 Ap 18 '13
- Hardwood tie plates on European railways, M. Matthel, *il Ry & Eng R* 53:435 My 10 '13
- Hardwood ties on the Panama railroad, Eng N 70:1166 D 11 '13
- Improvements in the treating plants, Ry & Eng R 53:462 My 17 '13
- Piecework or unit system of handling ties and timbers, W. W. Eldridge, Ry & Eng R 53:122-3 F 8 '13
- Preparing timber for treatment in the Gulf states, R. L. Allardyce, Ry & Eng R 53:128 F 8 '13
- Progress report on service tests of ties, H. F. Weiss, Ry & Eng R 53:164-7 F 22 '13
- Protection of ties from rail wear, Ry & Eng R 53:139 My 10 '13
- Railroad tie renewals, J. T. Bowser, Eng Rec 67:646-7 Je 7 '13
- Railroad ties purchased in 1911, Ry & Eng R 53:756-7 Ag 9 '13
- Railway ties in Canada: report, Ry & Eng R 53:394 Ap 26 '13
- Report of committee of American railway engineering assn. on ties, Ry Age 54:625-7 Mr 20 '13
- Sand cushion support for cross ties, *plan* Elec Ry J 41:511 Mr 15 '13
- Service tests of ties in experimental track, Ry Age 54:345-6 F 21 '13
- Tie renewals and ballasting, Ry Age 54:1091-2 My 16 '13
- Ties bought and treated in 1911, Eng Rec 68:182 Ag 16 '13
- Treated versus untreated ties, R. J. Parker, Eng M 45:741-4 Ag '13
- Varieties of ties used on the Panama railroad, Ry & Eng R 53:1173-4 D 20 '13
- See also* Wood preservation
- Railroad ties, Steel**
- Cast-weld joints and steel ties in Brooklyn, *il* Elec Ry J 42:920-4 O 25 '13
- Installations of twin-type steel ties, *il* Elec Ry J 42:1064 N 15 '13
- New railroad steel tie, *diags* Iron Age 92:341 Ag 14 '13
- Steel channel tie for mine tracks, *il* Eng & Min J 56:1070-1 D 6 '13
- Steel ties on foreign railways, *diags* Eng N 69:1307-8 Je 26 '13
- Railroad tracks.** *See* Railroads—Track
- Railroad yards.** *See* Railroads—Yards
- Railroads**
- Corporations and public, Eng M 45:89-90 Ap '13
- Plate-railways for road and steam traffic, G. N. Fell, Eng M 44:98-101 O '12

- Railway buying and general prosperity, E. L. Leigh, Ry Age 55:1161-2 D 19 '13; Same, Ry & Eng R 53:1171-5 D 20 '13
- Relation of railroads to the cost of distribution of food products, Ry & Eng R 53:760-1 Ag 9 '13
- State of mind regarding railroads, W. W. Finley, Ry & Eng R 53:211-2 Mr 8 '13
- Utica general improvement on the New York Central & Hudson river railroad, *il plans* Eng Rec 67:556-9 My 31 '13
- See also* Air brakes; Bridges, Railroads; Buffers; Cable railroads; Carriers; Cars; Commerce; Earthwork; Electric railroads; Elevated railroads; Express service; Freight; Freight car service; Freight cars; Freight terminals; Interurban railroads; Locomotive shops; Locomotive terminals; Locomotives; Motor cars (railroad); Mountain railroads; Railroad engineering; Railroad law; Railroad ties; Rails; Railway mail service; Rapid transit; Roundhouses; Steam engines; Street railroads; Subways; Suspended railroads; Trackways; Train dispatching; Train resistance; Trestles; Tunnels and tunneling; also names of railroads, e. g. Union Pacific railroad

Accidents

- Accidents on private and state railways, Ry Age 54:1165-6 My 20 '13
- Accidents to passenger trains in Great Britain, Eng N 70:1132 D 4 '13
- Accidents viewed from a track maintenance standpoint, Ry & Eng R 53:348-9 O 11 '13
- Aftermath of the New Haven wreck, Ry & Eng R 53:874-5 S 13 '13
- American railway association and railway accidents, Ry Age 55:552-3 N 7 '13
- Analysis of the causes of railway accidents, Elec Ry J 41:551 Mr 22 '13
- Analysis of train-crew legislation, Ry Age 55:750-6 O 21 '13
- Annual report of the Interstate commerce commission, Ry & Eng R 53:7-9 Ja 4 '13
- Apportioning the responsibility for the New Haven wreck, Sci Am 109:254 O 4 '13
- Automobile fatalities and railway fatalities, Ry Age 55:711-2 O 24 '13
- Boiler inspector's first annual report, Ry & Eng R 53:12 Ja 4 '13
- Causes of injury in railway maintenance of way department, E. H. Barnhart, Ry Age 54:352 F 21 '13
- Collision in a London subway—failure of an automatic stop, H. R. Wilson, Ry & Eng R 53:150-50 F 22 '13
- Collision on the Pennsylvania railroad at Tyronne, Pa., *il* Ry & Eng R 53:886-8 S 20 '13
- Comparison of railway casualties in Great Britain and in the United States, Eng N 70:671-2 O 2 '13
- Conditions of competition for the E. H. Harriman memorial gold medal, Ry Age 55:708 O 17 '13
- Co-operation in railroad safety, B. L. Winchell, Am Ind 14:24-5 Ag '13
- Gothenburg collision report, Ry Age 54:1177 My 30 '13
- Governmental tolerance of trespassing on railway property, Ry & Eng R 53:958-9 O 11 '13
- How deadly is railway travel? Sci Am 109:230 S 20 '13
- Human factor in safe transportation, Sci Am 108:392 My 3 '13
- Human fallibility in railway operation, Elec Ry J 41:182-3 F 1 '13
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Report of committee of Am. railway engineering assn. on records and accounts. Ry Age 54:729-31 Mr 21 '13

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Automatic stop

- American railway assn. report on automatic train stops. Ry & Eng R 53:691 Jl 19 '13
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 Automatic control of trains. B. C. Rowell. Ry & Eng R 53:2-3 Ja 4 '13
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 Collision in a London subway—failure of an automatic stop. H. R. Wilson. Ry & Eng R 53:159-60 F 22 '13
 Competition for the New York, New Haven and Hartford railroad company's automatic stop. Sci Am 109:50 Jl 19 '13
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- Effect of a well organized store department on the operating cost of a railroad. N. M. Rice. Ry & Eng R 53:510-1 My 31 '13
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- Baltimore & Ohio flood reconstruction. il Ry Age 55:166-9 J1 18 '13
- Birdseye view of conditions in Ohio flood districts. il Eng N 69:793-8 Ap 17 '13
- Damage by floods to railroads in Ohio and Indiana. il Ry Age 54:806-8 Ap 4 '13
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- Flood damage and repair work on the Baltimore & Ohio. Eng Rec 67:479 Ap 26 '13
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- American electrifications of high-tension, a. c. and d. c. roads, and comparative data to prove the superiority of high-voltage d. c. systems to a. c. systems of split-phase or other types. A. H. Armstrong. Elec Ry J 42:1284-90 D 20 '13; Discussion. W. S. Murray and others. 42:1290-2, 1327-9 D 20-27 '13
- Award of contract for electrification of Melbourne suburban system. map Elec Ry J 41:255 F 8 '13
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- Chicago, Milwaukee & St. Paul electrification over the heavy grades in the Rocky mountains. Eng Rec 68:629 D 6 '13
- Chicago, Milwaukee & St. Paul electrification through the Rocky mountains. map Ry Age 54:985-6 My 2 '13
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- Chicago railway terminals, Electrification of. Ry & Eng R 53:459-61 My 17 '13
- Chicago terminal electrification. Elec W 61: 1075-6 My 24 '13
- Chicago terminals and the smoke problem. R. E. Pierce. Ry & Eng R 53:440 My 10 '13
- Comparative cost of direct and single phase electrification of steam railroads. Sci Am 108:170 F 22 '13
- Contract awarded for electrification of the Melbourne suburban railways. Ry & Eng R 53:120-1 F 8 '13
- Discussion on steam railroad electrification. Elec Ry J 41:932-3 My 24 '13
- Electric traction on steam roads entering Melbourne, Australia. Eng N 69:145 Ja 23 '13
- Electrical equipment for the Melbourne (Australia) suburban railways. Elec W 61:315-6 F 8 '13
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- Electrification of Melbourne suburban railways. Ry & Eng R 53:59 Ja 18 '13
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- Electrification of steam railroads in mountain districts. Eng Rec 68:314-5 S 20 '13
- Electrification of trunk line railroads: estimate of cost and of saving in operating expenses. C. P. Kahler. Ry Age 54:1550-4 Je 20 '13
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- English officials study railroad electrification. Elec W 62:1149 D 6 '13
- European electric railways; new Lötschberg railway in Switzerland and the older Lecco-Colico line in northern Italy. L. Bell. il Elec Ry J 42:374-6 S 6 '13
- Experiences in operation of Loetschberg and Simplon tunnels. Elec Ry J 42:1244-5 D 13 '13
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- Mining magnetite in Sweden; electrification of ore road. A. S. Rice. il Iron Tr R 53:557-60 N 27 '13
- Mountain railway electrification; a study of the Tehachapi pass. A. H. Babcock. Am Inst E E Pro 32:1784-1815 S '13; Excerpts. Ry Age 55:447-9 S 12 '13
- New electrification plans of the Pennsylvania railroad. map Elec Ry J 42:500 S 27 '13
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- Norfolk & Western Ry. electric-traction plans. Eng N 69:1243 Je 12 '13
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- Principles of electric engineering. C. L. de Mural. Ry Age 54:808-9, 1031-2; 55:230-1, 418-9 Ap 4, My 9, Ag 8, S 5 '13
- Probabilities of main-line electrification. N. W. Storer. Eng N 45:259-61 My '13
- Progress in the electrification of railways. Eng Rec 67:329 Mr 29 '13
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- Railway electrification a conservator of natural resources. Eng Rec 68:686-7 D 20 '13
- Railway papers presented at the Am. Inst. E. E. Elec Ry J 41:956-7 My 31 '13
- Report of proposed electrification of London & Port Stanley railway. Elec Ry J 42:595 S 27 '13
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- Firemen's wages. Ry Age 54:259-60 F 7 '13
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- Organization of floating gang to train foremen. W. H. Cleveland. Ry Age 54:567-8 Mr 14 '13
- Payment of employees in cash; description of the method used on the Pennsylvania lines west. Ry Age 54:202-7 Ja 31 '13

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- Plan for solving the railway labor problem. G. A. Clark. Ry Age 55:663-4 O 10 '13.
- Presidents Brown and Rea on labor disputes. Ry & Eng R 53:220 Mr 15 '13.
- Prevention of accidents to maintenance of way employees. W. E. Davin. Ry Age 54:509-10 Mr 14 '13.
- Proper aims in training for railway service. H. G. Hetzler. Ry & Eng R 53:563-4 Je 14 '13.
- Protection of men in maintenance of way department. B. A. West. Ry Age 54:8-8 Ap 18 '13.
- Railway arbitration. Eng M 44:597-8 Ja '13.
- Railway employee and the railway patron. S. O. Dunn. Ry Age 55:1065-8 D 5 '13.
- Railway track labor problem. Ry Age 55:669-70 O 24 '13.
- Rest for employees and railway safety. Sci Am 109:406 N 29 '13.
- Rules regarding government of employes and conduct of work of the maintenance of way department. Ry Age 54:573-7 Mr 19 '13.
- Safety first for maintenance of way employees. E. B. Pithian. Ry Age 54:901 Ap 18 '13.
- Section foreman problem. B. A. West. Ry Age 54:349-50 F 21 '13.
- Section foremen made from clerks. W. S. Wollner. Ry Age 55:1187-8 D 19 '13.
- Section labor problem. A. M. Clough. Ry & Eng R 53:1041 N 8 '13.
- 6th meeting of Keystone railway club, York, Pa., June, 1913. Elec Ry J 41:1022-5 Je 7 '13.
- Strike on the North Eastern railway of England. H. R. Wilson. Ry & Eng R 53:9 Ja 4 '13.
- Strike on the Sunset lines. Ry Age 55:942-4, 959-62 N 21 '13.
- Study your apprentice boys carefully. G. M. Basford. Ry Age 55:7-9 J1 4 '13.
- Suggested means for holding laborers. Ry Age 55:771-4, 979-81 O 24, N 21 '13.
- Towermen and hours of service law. Ry & Eng R 53:534-5 Je 7 '13.
- Track labor problem. F. L. Jandron. Ry & Eng R 53:369-71 Ap 19 '13.
- Training the railway employee. A. Kipp. Ry Age 55:765-6 O 24 '13; Same. Ry & Eng R 53:1135-6 D 6 '13.
- Trainmen's demands refused. Ry & Eng R 53:409 My 3 '13.
- Unit basis for section-gang labor; maintenance of way system employed on the Pittsburgh and Lake Erie railroad. Eng M 44:783-5 F '13.
- Weak spots in discipline. Ry Age 55:550-1 S 26 '13.
- When accidents are not accidental. Ry Age 51:425-6 Mr 7 '13.

See also Freight solicitors; Locomotive engineers; Railroad conductors; Railroad education; Railroads—Management; Street railroads—Employees

Equipment and supplies

- Assignment of equipment valuation by states. A. I. Thompson. Ry Age 55:21-3 J1 4 '13.
- Burlington's construction organization. Ry Age 55:111-2 J1 18 '13.
- Effect of a well organized store department on the operating cost of a railroad. N. M. Rice. Ry & Eng R 53:510-1 My 31 '13.
- Effect of stores department on operating cost. N. M. Rice; H. C. Pearce. Ry Age 54:1140-2 My 23 '13; Same. Ry Age (Mech ed) 87:301-2 Je '13.
- Efficiency in the manufacture of railway transportation. H. Emerson. Eng M 44:921-8 Mr '13.
- Exhibits at 26th convention of Am. railway master mechanics' assn., 1913. Elec Ry J 41:1065-6 Je 14 '13.
- Export of British and American railway equipment. Ry Age 55:572-3 S 26 '13.
- Handling track material on the Pittsburgh & Lake Erie. Il plan Ry Age 54:162-3 Ja 24 '13.
- Iron, steel and equipment exhibits, Chicago. Iron Tr R 52:742-3 Mr 27 '13.
- Machinery exhibit at Atlantic City. Iron Age 91:1492-3 Je 19 '13.

- Railway electrical engineers' association; 6th annual convention, Oct., 1913. Ry Age 55:756-7, 831-3 O 24-31 '13.
- Railway storekeepers' association; abstracts of papers at 10th annual convention. Ry Age 51:1134-15 My 23 '13; Ry Age (Mech ed) 87:297-304 Je '13.
- Regulation of the stock of material; the relation of accounting to this problem. G. G. Yeomans. Ry Age 54:802-3 Ap 4 '13.
- Standard oil house. Ry Age (Mech ed) 87:310 Je '13.
- Storing and handling of material of Maintenance department; seven papers. Ry Age 54:159-61 Ja 24 '13.
- Supply department of the railway. G. C. Yeomans. Ry Age 55:857-9 N 7 '13.
- 10th annual convention of Railway storekeepers' assn., Chicago, 1913. Ry & Eng R 53:482-3, 487-8 My 24 '13.
- Wireless for railroad trains. Il Sci Am 109:432 D 6 '13.

See also Air brakes; Car couplings; Cars; Freight cars; Fuel; Locomotives; Railroad ties; Railroads—Electrification; Railroads—Maintenance and repair; Railroads—Safety devices; Railroads—Shops; Railroads—Signals; Rails; Sanders; Track scales

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- Commutation-rate reduction in New York. Elec Ry J 41:319 F 22 '13.
- New York commission reduces suburban fares. Ry Age 54:295-6 F 14 '13.
- Reduction in New York suburban fares ordered. Elec Ry J 41:309-10 F 15 '13.

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Finance

- Are American railroads overcapitalized? A. B. Johnson. Ry Age 55:271-3 Ag 15 '13.
- Atchison, Topeka & Santa Fe. map Ry Age 55:811-2 O 31 '13.
- Banking influence on railroad management. Ry Age 55:413-1 S 12 '13.
- Chesapeake and Ohio. map Ry Age 55:642-4 O 10 '13.
- Chicago & North Western. map Ry Age 55:552-4 S 26 '13.
- Chicago, Burlington & Quincy. Ry Age 55:844-5 N 7 '13.
- Chicago, Rock Island & Pacific. map Ry Age 55:631-2 O 17 '13.
- Coal mining adjuncts of railroads. J. D. A. Morrow. Ry Age 55:656 O 10 '13.
- Condition of the Lehigh Valley. map Ry Age 55:484-5 S 19 '13.
- Equipment notes and a bad bond market. Ry Age 54:1596 Je 27 '13.
- F. L. Lorce on the diminishing returns on railway investments. Ry & Eng R 53:417 My 3 '13.
- Hocking Valley. Ry Age 55:641-5 O 10 '13.
- Illinois Central. map Ry Age 55:551-2 S 26 '13.
- Increased transportation rates and needed facilities. B. A. Worthington. Ry & Eng R 53:961-3 O 11 '13.
- Lending city credit to aid railway projects. Eng N 69:367-8 My 8 '13.
- Looking into the future. B. A. Worthington. Ry Age 54:633-6 Mr 20 '13.
- Missouri Pacific. map Ry Age 55:689-91 O 17 '13.
- Need for higher rates. B. A. Worthington. Ry Age 55:872-3 N 7 '13.
- Needs of the railways. S. O. Dunn. Ry Age 54:321-4 F 21 '13.
- New Haven railroad financing. Eng N 69:968-9 My 8 '13.
- New York, New Haven and Hartford. map Ry Age 55:944-6 N 21 '13.
- Pres. Bush's comments on results of fiscal year ending June 30, 1913. Missouri-Pacific system. Ry & Eng R 53:933-4 O 4 '13.
- Pres. Howard Elliott on the situation and needs of the New Haven road. Ry & Eng R 53:926-7 O 4 '13.
- Proposed railroad clearing house. Ry Age 54:90-1, 100-3 Ja 17 '13.
- Railroad financing of the future. J. J. Hill. Ry & Eng R 53:1012-3 N 1 '13.

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- Railway borrowing since 1909. Ry & Eng R 53:351-2 O 11 '13
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- Railway business prospects. Ry & Eng R 53:860-1 S 13 '13
- Railway capitalization. S. Thompson. Ry & Eng R 53:188-9 My 24 '13
- Railway earnings for the fiscal year 1912-13. Ry & Eng R 53:937-9 O 4 '13
- Railway financial problem. H. Elliott. Ry & Eng R 53:1117-8 D 13 '13
- Railway income still under 1910. Ry & Eng R 53:868-9 S 13 '13
- Railway situation and its causes. B. Lee. Ry Age 55:767-8 O 21 '13
- Reasons for advantages of the New York Central-Lake Shore consolidation. Ry Age 55:41-3 JI 11 '13
- Record railroad revenues and expenses in 1912. S. Thompson. Ry & Eng R 53:352-3 Ap 12 '13
- Relation of railway charges to the supply of money and capital. C. A. Conant. Ry & Eng R 53:1181-3 D 20 '13
- Revenues and expenses of railways; monthly statistics published in the Railway Age Gazette
- Revenues and expenses of railways, Feb., 1913, and eight months of fiscal year, 1913. Ry Age 54:917-21 Ap 18 '13
- Revenues and expenses of railways in United States, Nov. and Dec., 1912 and first six months of 1913. Ry Age 54:263-5 F 7 '13
- Revenues and expenses of railways; tables. Ry Age 54:123-5 Ja 17 '13
- Revenues and expenses of steam railroads for June and the fiscal year. Ry & Eng R 53:82-4 S 20 '13
- Revenues and expenses of steam roads in United States for October, 1912. Ry & Eng R 53:36-7 Ja 11 '13
- St. Louis & San Francisco and its bankers. Ry Age 54:1269 Je 6 '13
- St. Louis Southwestern. map Ry Age 55:641-2 O 10 '13
- 7th annual meeting of the Society of railway financial officers, Highland Park, Ill., Sept., 1913. Ry Age 55:665-8 O 3 '13
- Southern railway. map Ry Age 55:62-4 O 17 '13
- Summary for the calendar year 1912 of revenues and expenses of steam roads. Ry & Eng R 53:207 Mr 8 '13
- Supreme court on division of expenses between interstate and intrastate traffic. Ry & Eng R 53:653-4 JI 5 '13
- Vast public interests involved in rate question. S. Thompson. Ry & Eng R 53:498-9 My 31 '13
- See also* Railroad clearing house; Railroads—Cost of operation; Railroads—Management; Railroads—Rates; Railroads—Valuation

Freight

- Car loading efficiency. Ry & Eng R 53:129-30 F 8 '13
- Economy of capacity loading from the shipper's point of view. G. Wilson. Ry Age 55:836 O 21 '13
- Efficiency of freight house forces; damaged freight. Ry Age 54:787-8 Ap 1 '13
- Facilities for replenishing ice for refrigeration in transit. C. M. Secrist. Ry Age 55:568 S 26 '13
- Freight claim blanks. Ry Age 55:341-2 Ag 22 '13
- Freight transfer platform of the Northern Pacific Ry. at Auburn, Wash. plan Ry & Eng R 53:140 F 15 '13
- Increasing the loading of cars. Ry Age 55:819 O 31 '13
- Organization for handling refrigeration transportation. J. S. Leeds. Ry Age 55:569-71 S 26 '13
- Pre-cooling perishable goods at loading stations. B. W. Redfearn. Ry Age 55:568-9 S 26 '13
- Report on track scales by the Interstate commerce commission. Ry & Eng R 53:757-9, 763-4, 807-19 Ag 9, 23 '13
- Transfer and adjustment of loads; preparation of repair and defect cards. Ry & Eng R 53:389 Ap 26 '13
- Transportation of fruit and vegetables. E. D. Levy. Ry Age 54:239-12 F 7 '13
- Weighing investigation by the Interstate commerce commission, at Chicago. Ry Age 54:442-4 Mr 7 '13
- Weighing methods on an eastern trunk line. Ry Age 54:292-1 My 2 '13
- Weighing methods on the St. Louis & San Francisco. Ry Age 54:147-9 Ja 24 '13
- See also* Freight; Freight car service; Freight cars; Freight handling; Freight rates; Freight terminals; Railroads—Terminals; Railroads—Train load; Railroads—Yards; Refrigeration in transportation; Refrigerator cars

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- Are you watching the coal pile? D. C. Buell. Ry Age 55:221-3 Ag 8 '13
- Fuel economy on a trunk line railroad. W. B. Landon. Ry & Eng R 53:54-7 Ja 18 '13
- Operating department and fuel economy. Ry Age 55:332-4 Ag 22 '13; Ry Age (Mech ed) 87:469-72 S '13

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Grades

- Analysis of the estimated saving in a proposed change from a 0.6 to a 0.3 per cent ruling grade on a typical 130-mile division. Eng Rec 68:375-6 O 4 '13
- Economical limits of grade reduction. W. L. Webb. Ry Age 54:750-2 Mr 28 '13
- Grade reduction and doubletracking on the Nashville, Chattanooga & St. Louis Ry. plans Eng N 70:802-5 O 23 '13
- Grand Trunk grade separation in Toronto. II map Ry Age 54:1213-8 Je 6 '13
- Minimum efficient gradient. P. M. La Bach. Ry Age 55:55-6 JI 11 '13
- Train resistance tests, Southern Pacific Ry. Eng N 69:410-1 F 27 '13

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- Economics of railway location. Ry Age 54:610-7 Mr 20 '13
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- Combined organization of maintenance of way forces. Ry & Eng R 53:862 S 13 '13
- Contracting of maintenance work. Ry Age 55:503 S 19 '13
- Double prize track section, New York Central R. R. II plan Ry & Eng R 53:861 S 13 '13
- Drainage of railway roadbed. J. T. Bowser. Eng Rec 67:290-2 Mr 15 '13
- Efficiency of maintenance of way labor. H. C. Landon. Ry Age 54:1087-9 My 16 '13
- Freight car maintenance costs and service. Ry & Eng R 53:344 Ap 12 '13
- Maintenance of electric railway equipment. C. H. Quereau. Eng N 70:28-9 JI 3 '13
- Maintenance of equipment. Ry & Eng R 53:388-9, 412-3, 436-7, 461, 504-5, 564-5, 598-9, 628, 651, 673, 738-9, 782 Ap 26-My 17, 31, Je 14-JI 12, Ag 2, 16 '13
- Maintenance of way improvements, Chicago Great Western Ry. Ry & Eng R 53:148 F 15 '13

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- Maintenance of way master painters' association: abstract of papers presented at 10th annual convention at Louisville, Ky., 1913. Ry Age 55:982-5, 1179-81 N 21, D 19 '13
- Motor cars for maintenance of way forces: study of service of over 3500 cars on sixty roads. Ry Age 55:101-3 J1 18 '13
- Pennsylvania railroad electric locomotives—maintenance. II Elec Ry J 41:452-61 Mr 15 '13
- Roadmasters' and maintenance of way assn.: 31st annual meeting. Chicago, 1913. Ry Age 55:151-23 S 19 '13
- Rules regarding the government of employes and the conduct of work of the maintenance of way department. Ry Age 54:573-7 Mr 19 '13
- Standard track-work system. E. Stimson. Eng Rec 67:287-8 Mr 15 '13
- Storing and handling of material of Maintenance department: seven papers. Ry Age 54:159-61 Ja 24 '13
- Temporary structures for supporting railroad tracks. Eng Rec 68:490 N 1 '13
- 31st annual convention of the Roadmasters' and maintenance of way assn., Chicago, Sept., 1913. Ry & Eng R 53:867-8 S 13 '13
- Unit basis for section-gang labor: maintenance of way system employed on the Pittsburgh and Lake Erie railroad. Eng M 44:783-5 F '13
- Winter maintenance methods contest: nine papers. Ry Age 54:492-6 Mr 14 '13

See also Freight cars—Repair; Locomotive shops; Locomotives—Repair; Railroads—Damages from floods, etc.; Railroads—Equipment and supplies; Railroads—Shops; Railroads—Track; Rails; Wrecking cars

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- Buffalo, Rochester & Pittsburgh. Ry Age 55:318-9 Ag 22 '13
- Credit due to operating department for power utilization and train movement that reduces consumption of fuel per ton mile. Ry & Eng R 53:782-3 Ag 16 '13
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- Division office building designed for the Hine system of organization. plan Ry Age 55:827-8 O 31 '13
- Effect of well organized store department on the operating cost of a railroad. N. M. Rice. Ry & Eng R 53:510-1 My 31 '13
- Efficiency in the manufacture of railway transportation. H. Emerson. Eng M 43:341-7; 44:481-6, 751-8, 921-8; 45:174-82, 381-97 Je '12, Ja-Mr, My-Je '13
- Efficiency in the manufacture of railway transportation: part played by supremely good personnel. K. M. H. Blackford. Eng M 45:71-5 Ap '13
- Efficient methods of handling correspondence. J. L. Hanna. Ry Age 54:61-3 Ja 10 '13
- Employment department. F. L. Jandron. Ry & Eng R 53:761-3 Ag 9 '13
- Factors in the selection of locomotives in relation to the economics of railway operation. O. S. Beyer, jr. Am Soc M E J 35:1-24 Ja '13
- Force organization in the railroad repair shop. E. Cordeal. Eng M 45:538-45 J1 '13
- Greater efficiency in safety work. G. Bradshaw. Ry Age 54:882-4 Ap 18 '13
- Impressions of European railway practice: training of employees and careful selection and design of material. H. W. Jacobs. Ry Age 54:677-9 Mr 21 '13
- Impressions of German railway practice: handling of locomotives at terminals, economizing of fuel and care of employees. H. W. Jacobs. Ry Age 54:25-6 Ja 3 '13
- Mechanical department organization of the Erie railroad. R. S. Mounce. Ry Age (Mech ed) 87:615-6 D '13
- Motive power utility. N. D. Ballentine. Ry & Eng R 53:715-7 J1 26 '13
- Need for co-operation between railways regarding operation. Ry Age 55:856 N 7 '13
- Needs of the railways. S. O. Dunn. Ry Age 54:321-4 F 21 '13

- Operating department and fuel economy. Ry Age 55:332-4 Ag 22 '13; Ry Age (Mech ed) 87:469-72 S '13
- Operating organization on the Canadian Pacific. Ry Age 54:19-22 Ja 3 '13
- Organization and men. F. L. Jandron. Ry & Eng R 53:508-10 My 31 '13
- Payment of employees in cash: description of the method used on the Pennsylvania lines west. Ry Age 54:202-7 Ja 31 '13
- Philosophy of railway management. F. L. Jandron. Ry & Eng R 53:51-2 Ja 18 '13
- Radical departure proposed in railway branch line service. F. E. Drake. Ry & Eng R 53:526-7 Je 7 '13
- Railroad operating administration. E. L. Suffern. Ry & Eng R 53:125-6 F 8 '13
- Railroads and public relations. J. H. Baumgartner. Ry & Eng R 53:825-6 Ag 30 '13
- Railway efficiency. A. Crumpton. Ry & Eng R 53:1155-6 D 13 '13
- Railway equipment organization. Ry & Eng R 53:94-5 F 1 '13
- Railway management vs. corporate management. Ry & Eng R 53:534 Je 7 '13
- Railway storekeepers' assn. 10th annual convention. Chicago, 1913. Ry & Eng R 53:482-3, 487-8 My 24 '13
- Reasons why railroads are unpopular. Ry Age 54:195-6 Ja 31 '13
- Reports on apprenticeship, shop schedules, driving box work, and engine house efficiency. Ry Age 55:151-4 J1 25 '13
- Reverie on the unit system. Ry Age 54:1020-1 My 9 '13
- Rules and organization. Ry & Eng R 53:274-5 Mr 22 '13
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- Studies in operation—the Chesapeake & Ohio. Ry Age 55:1061-5 D 5 '13
- Studies in operation—the Chicago, Burlington & Quincy. Ry Age 55:85-7 J1 18 '13
- Studies in operation—the Missouri, Kansas & Texas. map Ry Age 54:1167-72 My 30 '13
- Suggested organization for maintenance of way department. F. W. Rizer. Ry Age 54:339 F 21 '13
- Suggestions for more efficient organization. N. E. Bailey. Ry Age 55:216-7 Ag 8 '13
- Supply department of the railway. G. C. Yeomans. Ry Age 55:857-9 N 7 '13
- System and organization in station work. Ry Age 55:52-3 J1 11 '13
- 21st annual convention of American association of railroad superintendents. Chicago, Aug. 1913. Ry Age 55:374-7 Ag 29 '13
- Working of the Hine unit system. Ry Age 54:1307-8 Je 13 '13

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- Efficiency in the manufacture of railway transportation. H. Emerson. Eng M 43:341-7; 44:481-6, 751-8 Je '12, Ja-F '13
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- Indicting railway officials as a remedy for accidents. Eng N 69:124-5 Ja 16 '13
- Moral character in the administration of discipline. Ry Age 54:783 Ap 4 '13
- Moral character in the administration of discipline. W. L. Park. Ry Age 54:870 Ap 18 '13
- Railway officers and railway supply men. A. L. Humphrey. Ry Age 54:278 F 14 '13
- Railway officials indicted for train wrecks. Ry & Eng R 53:13-4 Ja 4 '13

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- Chicago passenger traffic. Ry Age 55:1125 D 12 '13
 Passenger conditions and their relation to the public. G. W. Boyd. Ry Age 55:1220-1 D 26 '13

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- Colorado free pass investigation. Ry & Eng R 53:349-51 Ap 12 '13
 Pass form for Rock Island lines. Ry Age 55:275 Ag 15 '13
 Seathing report on Colorado passes. Ry & Eng R 53:327 Ap 5 '13

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- Advance in freight rates necessary. Ry & Eng R 53:496 My 31 '13
 Coke and iron ore freight rate decisions. Iron Age 91:1478-80 Je 19 '13
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 Coke rate reduction. Iron Tr R 53:186 J1 31 '13
 Copper freight rates. Eng & Min J 95:197 Ja 18 '13
 Decision on westbound transcontinental commodity rates. Ry & Eng R 53:318-9 Ap 5 '13
 Fallaciousness of averages. Ry Age 55:886-7 N 7 '13
 Freight rate advance hearing before Interstate commerce commission. Ry & Eng R 53:1108-12 N 29 '13
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 Freight rate advance hearings: presentation of the case by the railroads; statements by Mr. Willard and Mr. Delano; a digest of the evidence. Ry Age 55:1025-33 N 28 '13
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 General rate advance in the official classification territory: second hearing. Ry & Eng R 53:1177-8 D 20 '13
 Heavier loading of cars. Ry & Eng R 53:996-8, 1024-6 O 25-N 1 '13
 Increased transportation rates and needed facilities. B. A. Worthington. Ry & Eng R 53:961-3 O 11 '13
 Interstate commerce commission decision on coal and coke rates. Ry & Eng R 53:100-1 F 1 '13
 Interstate commerce commission orders reduction in express rates. Ry & Eng R 53:751-3 Ag 9 '13
 Interstate commerce commission's orders in the eastern advance rate application. Ry & Eng R 53:650-1 J1 5 '13
 Living wage and the living rate. T. Roosevelt. Ry & Eng R 53:693 J1 19 '13
 Minnesota freight rate problems. Ry & Eng R 53:1055 N 15 '13
 Minnesota rate case decided by Supreme court. Ry Age 54:1304-5, 1318-9 Je 13 '13
 Minnesota rate case decision. Elec Ry J 41: 1049, 1064 Je 14 '13
 Minnesota rate case decision. Ry & Eng R 53:561-3 Je 14 '13
 Minnesota rate case decision: comment. Ry & Eng R 53:566-7 Je 14 '13
 Movement of prices and railway rates. M. C. Colson. Ry Age 55:919-23 N 14 '13
 Need for higher rates. B. A. Worthington. Ry Age 55:872-3 N 7 '13
 New application for increased rates. Ry & Eng R 53:414-5 My 3 '13
 Plan for a uniform freight rate structure and method of stating rates. Ry Age 55: 1234-5 D 26 '13
 Press and proposed advances in freight rates. Ry Age 54:1219 Je 6 '13
 Prices and rates. Eng M 46:95-6 O '13
 Proposed rate advances on eastern roads. Ry Age 54:1017-8 My 9 '13
 Publishing trades and the freight rate advance. E. W. Beedle. Inland Ptr 51:858-9 S '13
 Question of increased freight rates. A. B. Hulit. Ry Age 55:140-2 J1 25 '13

- Railroad demand for increased rates. Iron Age 91:1374-5 Je 5 '13
 Railroads change ore rates. Iron Tr R maps 53:351-2 Ag 21 '13
 Railroads will protest new western rates. Ry & Eng R 53:741-2 Ag 2 '13
 Railway rates and railways' cost of living. R. J. Clancy. Ry & Eng R 53:1201-2 D 27 '13
 Railway rates in the United States. C. Colson. Ry & Eng R 53:107-8 F 1 '13
 Relation of railway charges to the supply of money and capital. C. A. Conant. Ry & Eng R 53:1181-3 D 20 '13
 Shippers and the advance in freight rates. Ry Age 54:1188-90 My 30 '13
 Significance of the state rate case decisions. H. T. Newcomb. Ry Age 55:139 J1 25 '13
 Significance of the state rate decisions. Ry Age 54:1595-6 Je 27 '13
 Supreme court sustains New Orleans-Mobile rate reduction. Ry Age 54:212 Ja 31 '13
 Through routes ordered among interurban lines. Ry & Eng R 53:691-3 J1 19 '13
 Transcontinental commodity rates increased. Ry Age 54:803-5 Ap 1 '13
 Two commerce court decisions: Shreveport case and Anthracite coal case. Ry Age 54: 994-7 My 2 '13
 Vast public interests involved in rate question. S. Thompson. Ry & Eng R 53:498-9 My 31 '13
 Why freight rates should be increased. D. Willard. Ry Age 54:1227-9 Je 6 '13

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Records

- Condensed record of locomotive equipment. R. M. Swartz. Ry Age (Mech ed) 87:527-9 O '13
 Daily time and material report systems of railroads. Ry Age 55:505-8 S 19 '13
 Forms for locomotive operation and cost; office records that give index of shop and roundhouse conditions. A. V. Heckman. Am Eng 87:124-8 Mr '13
 Practical plan for standardizing railroad records. F. L. Hutchins. Eng M 45:664-8 Ag '13
 Record of maximum clearances. J. G. Wishart. Ry Age 54:1092-3 My 16 '13
 Uniform general contract forms: report of committee of American railway engineering assn. Ry Age 54:620-4 Mr 20 '13

Rolling stock

See Baggage and express cars; Cars; Dining cars; Freight cars; Locomotives; Motor cars (railroad); Postal cars; Refrigerator cars; Sleeping cars; Wrecking cars

Safety devices

- Application of safety appliances to cars. F. J. Carty. Am Eng 87:147-9 Mr '13
 Block signal and control board. Sci Am 108: 62 Ja 18 '13
 Block signal and train control board report. Ry Age 54:292-5 F 11 '13
 Block signaling and train control report. Eng N 69:387-90 F 20 '13; Same. Sci Am S 75:365-7 Je 7 '13
 Device for securing hand holds. N. C. Thalheimer. diag Am Eng 87:103-4 F '13
 Final report of the Block signal and train control board, 1912. Ry & Eng R 53:191-3, 213-5 Mr 1-8 '13
 Greater efficiency in safety work. G. Bradshaw. Ry Age 54:882-4 Ap 18 '13
 Jones safety train control system. C. W. Hendrick. Ry & Eng R 53:919-20 S 27 '13
 Later aspects of the "safety first" movement. J. W. Coon; G. Bradshaw. Ry Age 54:387-9 F 28 '13
 Pennsylvania railroad "safety first" exhibit. il Elec Ry J 42:934-5 O 25 '13
 Prevention of accidents to maintenance of way employees. W. E. Davin. Ry Age 54: 509-19 Mr 11 '13
 Protection of men in maintenance of way department. B. A. West. Ry Age 54:898 Ap 13 '13

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Railroad officials urge caution in federal safety legislation. Ry & Eng R 53:861-2 S 13 '13

Report of H. W. Behnap. Ry Age 51:950-1 Ap 25 '13

Safety as applied to the railways of industrial plant yards. il Am Ind 14:sup 1-1 O; sup 1-4 N '13

Safety devices for locomotive boilers. diags Ry Age (Mech ed) 87:333-5 Je '13

Safety exhibit car on New York Central. il Elec Ry J 42:227 Ag 9 '13

Safety exhibit car on the New York Central & Hudson River. Ry Age 55:228-9 My 8 '13

Safety first for maintenance of way employees. E. B. Pithian. Ry Age 54:201 Ap 18 '12

Safety in operating methods. Pennsylvania railroad. Ry & Eng R 53:1017-8 N 1 '13

Safety methods and list of exhibits. Southern Pacific co. Ry & Eng R 53:1153-5 D 13 '13

Safety on the Chicago & Northwestern: organization for this work and illustrations of shop safeguards. W. T. Gale. il plans Am Eng 87:137-41 Mr '13

Safety on the New York Central. il Am Ind 14:24-5 O '13

Steel car as a life saver. il Sci Am 109:224 S 20 '13

Train wrecks and hasty legislation. Ry & Eng R 53:846-7 S 6 '13

See also Air brakes; Car couplings; Railroads—Automatic stop; Railroads—Signaling; also American railway safety association

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Baltimore & Ohio timber-treating plant. Green Spring, W. Va. F. J. Angier. il plan Eng Rec 67:572-4 My 24 '13; Same. Ry & Eng R 53:151-3 My 17 '13; Same. Eng N 69:1182-3 Je 5 '13

Canadian Pacific railway shops at Ogden. il Eng Rec 67:958 Je 11 '13

Canadian Pacific Ry. shops near Calgary, Alberta. il plan Ry & Eng R 53:551-5 Je 14 '13

Canadian railroad foundry at Transcona, Man. plan Foundry 41:236-8 Je '13

Efficient power plant operation. E. Cordeau. Ry Age (Mech ed) 87:531-3 O '13

Engine house and repair shop. Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ontario. plan Ry & Eng R 53:195 My 3 '13

Engine house efficiency. Ry & Eng R 53:736-8 Ag 2 '13

Force organization in the railroad repair shop. E. Cordeau. Eng M 45:538-45 Ji '13

General foremen's 9th annual convention: papers and reports. Ry Age (Mech ed) 87:406-7, 415-28 Ag '13

Illinois Central mechanical terminal at Centralia. il plans Ry Age 54:1597-1604 Je 27 '13

Illinois Central shop improvements at Burnside, Ill. il diags plans Am Eng 87:193-8 Ap '13

Impressions of Hungarian railway practice. H. W. Jacobs. il Ry Age 54:427-33 Mr 7 '13

Intercommunicating telephone facilities of the Burnside shops. Illinois Central railroad. il Ry & Eng R 53:1134 D 6 '13

International railroad master blacksmiths' assn. 21st annual convention: papers. Ry Age (Mech ed) 87:485-94 S '13; Same cond. Ry Age 55:369-70 Ag 29 '13

Joliet, Ill. locomotive repair shop. il plans Ry & Eng R 53:927-30 O 4 '13

Lackawanna frog and switch shops. il plan Ry Age 55:975-8 N 21 '13

Locomotive boiler tube tools for application and maintenance of all tubes, including those for superheaters and brick arches. W. R. Hedeman. il plans Am Eng 87:23-9 Ja '13

Locomotive repair plant, Wabash railroad, Decatur, Ill. il plans Ry & Eng R 53:1033-6 N 8 '13

Locomotive terminals and repair facilities of the Northern Pacific Ry. in Washington. il plans Ry & Eng R 53:519-22 Je 7 '13

Mechanical terminal for Illinois Central. W. Bond. il plans Ry Age (Mech ed) 87:353-6 Ji '13

New shops of the Canadian Pacific railway near Calgary, Alberta, Canada. il Eng N 69:1314-6 Je 26 '13

9th annual convention of the International railway general foremen's assn., Chicago, July, 1913. Ry & Eng R 53:695-7 Ji 19 '13

Reclaiming scrap on the Santa Fe. il Ry Age 55:260-7 Ag 15 '13

Repairs to main rods. C. D. Ashmore. plans Am Eng 87:29-30 Ja '13

Rolling mills for scrap docks. G. G. Allen. Ry Age 54:1138-9 My 23 '13; Same. Ry Age (Mech ed) 87:305 Je '13

Safety on the Chicago & Northwestern: organization for this work and illustrations of shop safeguards. W. T. Gale. il plans Am Eng 87:137-41 Mr '13

Scale shops. Ry Age 55:300 Ag 15 '13

Schedules for locomotive repairs: routing system in repair shops. H. Gardner. il Eng M 44:117-21 D '12

Scheduling work in the railroad repair shop. E. Cordeau. Eng M 44:191-8 N '12

Shop arrangements and facilities. I. S. Downing. Am Eng 87:144 Mr '13

Shop kinks. W. F. Canavan. il Am Eng 87:81-4 F '13

Shop kinks. C. L. Dickert. diags Ry Age (Mech ed) 87:537-8 O '13

Shop kinks. W. H. Wolfgang. diags Ry Age (Mech ed) 87:369-71 Ji '13

Shop kinks from the Frisco. J. C. Breckenfeld. il diags Ry Age (Mech ed) 87:373-8 Ji '13

Shop output. J. H. Tinker. Ry Age (Mech ed) 87:666-8 D '13; Same. Ry & Eng R 53:1205-7 D 27 '13; Same cond. Ry Age 55:1018-9 N 28 '13

Shops of the Missouri Pacific Ry. at Hoisington, Kansas. il Ry & Eng R 53:6-7 Ja 4 '13

Shops of the Western Pacific Ry., Sacramento, Cal. il plan Ry & Eng R 53:883 S 20 '13

Smith shop kinks. C. L. Dickert. diags Am Eng 87:253-4 My '13

Smith shop tools. J. F. Perritt. diags Am Eng 87:191 Ap '13

Smoke stack crane, pneumatic loading hoist, and portable sand blast. W. A. McGee. plans Am Eng 87:85-6 F '13

Western Pacific shops at Sacramento, Cal. il Ry Age 55:564 S 26 '13

See also Car houses; Electric railroads—Shops; Locomotive shops; Railroads—Terminals; Roundhouses

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Cantilever principle in signal bridges. plan Ry & Eng R 53:64 Ja 18 '13

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Adjunctive safeguards. Ry Age 55:689 O 17 '13

Audible railway signals. E. G. Still. Sci Am 108:267 Mr 22 '13

Automatic block signal performance. Ry Age 54:1305-6 Je 13 '13

Automatic block signal records. Ry Age 54:333-4, 1324-6 F 21, Je 13 '13

Automatic block signals for single track; C., I. & L. Ry. il Eng N 69:58-60 Ja 9 '13

Automatic railway signaling. Sci Am S 75:275 My 3 '13

Automatic stops and audible signals. Ry Age 54:831-5 Ap 11 '13

Automatic wireless train control. F. C. Coleman. diag Sci Am 109:428 D 6 '13

Better means of rear flagging for trains. J. E. Johnson, jr. Iron Age 92:622-3 S 18 '13

Block signal and train control board report. Ry Age 51:292-5 F 14 '13

Block signaling and train control report. Eng N 69:378-90 F 20 '13; Same. Sci Am S 75:365-7 Je 7 '13

Block signaling from different points of view. Ry Age 54:3-4 Ja 3 '13

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Block signals and automatic stops; effect on accidents. A. G. Shaver. Ry Age 54:112 Mr 7 '13

Block signals and interlocking plants on the Chicago Great Western R. R. il Eng N 69:104-6 Ja 16 '13

Block signals in the United States. Ry & Eng R 53:180-2 My 21 '13

Block system. Ry Age 54:89-90 Ja 17 '13

British opinion on railway automatic stops. H. R. Wilson. il plan Eng N 69:193-5 Ja 30 '13

Cab-signalling; a description of the audible system on British railways. A. T. Blackall. diag Eng M 45:277-8 My '13

Cab signalling in Great Britain. H. R. Wilson. il Eng M 45:117-8 Ap '13

Effect of metal and treated ties on track circuits. Ry & Eng R 53:153-5 My 17 '13

Final report of the Block signal and train control board, 1912. Ry & Eng R 53:191-3, 213-5 Mr 1-8 '13

Flagging at grade crossings. T. H. Low. Sci Am 109:283 O 11 '13

Flagging rule and its enforcement. Ry Age 55:695-7 O 17 '13

Flashlight signaling for railways. il Sci Am 109:149 Ag 23 '13

Illuminated semaphore signal. il Eng N 70:1234 D 18 '13

Improved cab signalling and dispatching. P. J. Simmen. il Eng M 44:222-5 D '12

Interlocking rules adopted in Wisconsin. Elec Ry J 42:26-7 O 25 '13

Is standard code rule 20 safe? P. T. D. Ry Age 55:1114 D 12 '13

Latest and worst New Haven railway disaster. il Eng N 70:520-3 S 11 '13

Meeting of Railway signal assn., Chicago, March, 1913. Ry & Eng R 53:270-4 Mr 22 '13

Mileage of railroad block signaled in United States. Ry Age 54:1059-63 My 16 '13

Motor generators and frequency in alternating current railway signaling. Ry & Eng R 53:671-3 Jl 12 '13

The overlap. S. E. A. Ry Age 55:1060 D 5 '13

Railroad signal systems; the Pennsylvania's method. A. H. Rudd. Eng M 46:102-5 O '13

Railway signal association; 18th annual convention committee reports. Ry & Eng R 53:975-7 O 18 '13

Railway signal association; 18th annual meeting. Nashville, Tenn., Oct. 1913. Ry Age 55:760-2 O 24 '13

Railway signal association; report of committees on power interlocking, manual block, standard designs, etc. Ry Age 54:531-47 Mr 18 '13

Recent developments in signaling apparatus. il Ry & Eng R 53:143 My 16 '13

Relative advantages and cost of various kinds of manual block signals. diags Ry & Eng R 53:974 O 18 '13

Right of track in large stations. Ry Age 54:1018-9 My 9 '13

Rules governing construction, maintenance and operation of interlocking plants adopted by the Railroad commission of Wisconsin. Ry & Eng R 53:1184-6 D 26 '13

Schemes for uniform signaling practice. Ry & Eng R 53:395 Ap 26 '13

Signal department. Ry Age 54:1076 My 16 '13

Signal maintainer. Ry Age 55:2-3 Jl 4 '13

Signaling conditions on the Pennsylvania. A. H. Rudd. Ry Age 55:625-6 O 3 '13

Signals and interlocking; report of committee of American railway engineering assn. Ry Age 54:577-8 Mr 19 '13

Slovenly whistling. W. R. Shaw. Ry Age 54:714 Mr 28 '13

Switch indicators. Ry Age 55:742 O 24 '13

Temporary installation of automatic block signals on Gettysburg & Harrisburg railroad. plan Ry Age 55:223-4 Ag 8 '13

Train-order signal controlled by the train dispatcher. il Eng N 69:1-2 Ja 2 '13

Universal aspect; address before Railway signal association. E. J. Pearson. Ry & Eng R 53:1036-S N 8 '13

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Working the space interval system with inadequate signals. Ry Age 55:173 Ag 1 '13

See also Railroads—Automatic stop; also Railway signal association

Snow protection and removal

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Pilot snow plow. E. R. Lewis. Ry Age 54:255-6 F 7 '13

Rotary snow plow. Canadian Pacific Ry. H. H. Vaughn. il Ry & Eng R 53:58-9 Ja 18 '13

Rotary snow plows; development from earliest type to latest Canadian Pacific design. il Eng Rec 67:38-9 Jl 11 '13

Snow engineering. J. W. Foote. Ry Age 54:351 F 21 '13

Snow fences. Ry Age 55:790-1 O 21 '13

Snow removal by steam radiation. J. W. Foote. Ry Age 54:497 Mr 14 '13

Tree windbreaks to replace portable snow fences. il Eng Rec 68:47 Jl 12 '13

Winter maintenance methods contest; nine papers. Ry Age 54:192-6 Mr 14 '13

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System and organization in station work. Ry Age 55:52-3 Jl 11 '13

What many station agents miss. Ry Age 54:334-5 F 21 '13

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Concrete buildings on the Lackawanna. il Ry Age 55:511-4 S 19 '13

Detroit, Mich.—new passenger station of the Michigan Central railroad. il plan Ry & Eng R 53:1191-6 D 27 '13

Duluth, Missabe and Northern station at Hibbing, Minnesota. il diag Ry Age 54:291-2 F 14 '13

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Grand Central terminal station. T. Starrett. il Arch & Bldg 45:129-32 Ap '13

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Mississippi Northwestern R. R.—terminal station plans at Pascagoula, Miss. plans Ry & Eng R 53:497 My 31 '13

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 Chicago railway terminals: relocating. plan Ry Age 54:1184-7 My 30 '13
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 Chicago terminals and smoke problem. R. E. Pierce. Ry & Eng R 53:440 My 10 '13
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Terminal service. W. M. Prall. Ry Age 54:249-50 F 7 '13

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- 31st annual convention of the Roadmasters & maintenance-of-way assn., Chicago, Sept., 1913. Ry & Eng R 53:867-8 S 13 '13
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Specifications for maps and profiles for federal valuation of railroads: objections by carriers. Eng Rec 68:292 S 13 '13

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United States Supreme court on principles of railway valuation. Eng N 69:1338-9 Je 26 '13

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Fourth annual report Ferrocarriles nacionales de Mexico, *Ry Age* 51:19-4 Ja 3 '13

How Mexican rebels destroy railways and bridges, G. E. Weeks, *il Sci Am* 109:209-19 S 13 '13

National railways of Mexico, map *Ry Age* 51:4-5; 53:1211-2 Ja 3, D 26 '13

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Enlarging the outlets of commerce, J. J. Hill, *Am Ind* 13:21-2 Ja '13

5th annual meeting of the Railway business assoc., New York, Dec., 1913; addresses of Howard Elliott & Governor Cox, *Ry Age* 53:1115-7 D 12 '13

How the railways have fared since 1902, S. W. Luning, *Ry Age* 53:659 O 16 '13

Looking into the future, E. A. Worthington, *Ry & Eng R* 53:267-9 Mr 22 '13

Problem of railway valuation: change in public attitude toward carriers, L. G. McPherson, *Ry Age* 51:131-3 My 23 '13

Railway affairs in 1912, *Ry & Eng R* 53:348-9 Ap 12 '13

Railways and agriculture compared: carriers' outputs increased much more in proportion to facilities than farmers', *Ry Age* 51:796-9 Ap 4 '13

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Revenues and expenses of railways: monthly statistics published in the Railway Age Gazette

Revenues and expenses of steam roads in United States for October, 1912, *Ry & Eng R* 53:36-7 Ja 11 '13

Statistics of railways for the fiscal year 1912, *Ry & Eng R* 53:719-21 Jl 26 '13; *Ry Age* 53:189-1 Ag 1 '13

Statistics of steam railways in the United States, *Eng Rec* 68:104-5 Jl 26 '13

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Meeting of railroad commissioners: abstracts of reports of committees. Elec Ry J 42:973-82, 1013-6 N 1-8 '13

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National association of railway commissioners: convention discussions. Ry & Eng R 53:1042-3 N 8 '13

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Paper before National civic federation on government ownership railroads. S. Low. Elec Ry J 42:1239-40 D 13 '13

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Abstracts of papers at 10th annual convention, Chicago, 1913. Ry Age 54:1134-45 My 23 '13; Ry Age (Mech ed) 87:27-304 Je '13

Tenth annual convention, Chicago, May, 1913. Ry & Eng R 53:482-3 My 21 '13

Railway telegraph superintendents. See Association of railway telegraph superintendents

Railway tool foremen's association. See American railway tool foremen's association

Railway tools. See Tools

Railway valuation board. See Interstate commerce commission—Railway valuation board

Rain and rainfall

Deficient rainfall in the summer of 1913. Eng N 70:305 N 6 '13

Effect of recent flood on New York streams. R. E. Horton. il Eng Rec 67:399-402 Ap 12 '13

Rainfall and flood conditions in Ohio, March 23 to 28, 1913. J. W. Smith. il Sci Am S 75:296-7 My 10 '13

Rate of rainfall for storm-sewer calculations: experience of Pawtucket, R. I. G. A. Carpenter. Eng N 69:861-2 Ap 24 '13

Rates of rainfall for storm-sewer calculations. J. A. Cushman. Eng N 69:704-5 Ap 10 '13

75-year record of rainfall; St. Paul, Minn. Eng N 70:514-5 S 11 '13

Source of heavy rainfalls. A. J. Henry. Eng N 70:8 Jl 3 '13

Raisins

Utilization of waste raisin seeds. Sci Am S 76:55 Jl 26 '13

Raleigh, Charlotte & Southern railroad

New extension of the Norfolk Southern. il map Ry Age 54:1315-8 Je 13 '13

Rams, Hydraulic. See Hydraulic rams

Rand, Charles F., 1856-

New president of the Am. Inst. of M. E. por Eng & Min J 95:453 Mr 1 '13

Range boilers. See Boilers, Range

Range-finders

Range-finder stations for forest fires. Eng N 69:573-4 Mr 20 '13

Single instrument range-finder. il Sci Am 108:360 Ap 19 '13

Range towers

Architecture on the Panama canal—a suggestion. il Sci Am 108:136 F 8 '13

Rapid transit

City passenger transportation in the United States. G. D. Snyder. Sci Am S 75:202 Mr 29 '13

Transportation and city planning. M. R. Maltbie. Elec Ry J 41:1106-7 Je 21 '13; Same cond. Eng Rec 68:65-6 Jl 19 '13

Transportation facilities and city planning. M. R. Maltbie. Eng N 69:1025-6 My 15 '13

See also Electric railroads; Elevated railroads; Railroads; Street railroads; Subways; Trackless trolleys; also subdivision Rapid transit under names of cities, e.g. New York (city)—Rapid transit

Rasps. See Files and rasps

Rate regulation. See Public service commissions; Railroads—Rates

Ray consolidated copper company

Report for 1912. Eng & Min J 95:1083-4 My 31 '13

Raymond, Rossiter Worthington, 1810-
 Dr. Raymond and the Am. Inst. M. E. Eng & Min J 95:886-7 My 3 '13

Reamers

Eccentricity of reamed holes. H. A. S. Howarth. diags Mach 19:387 Ja '13

Floating reamer-holders. A. A. Dowd. il Mach 19:835-8 Jl '13

Reclamation of land

Government aid in land drainage. A. E. Morgan. Eng N 69:978-9 My 8 '13

Reclaiming the Florida everglades: joint report of Board of engineers. il map Eng N 70:835-7 O 23 '13; Eng Rec 68:454-7 O 25 '13

Reclamation of ancient Babylonia by irrigation. E. J. Banks. il map Eng N 69:468-9 Mr 6 '13

Reclamation of swamp lands in North Carolina. J. H. Pratt. Eng N 69:1108 My 29 '13

Sand dunes: how they are reclaimed in Europe and in the United States. Sci Am 108:581 Je 28 '13

Utilizing a city's wastes for filled land. Eng Rec 67:415-6 Ap 12 '13

See also Drainage; Irrigation; Reclamation service (U. S.); Shore reclamation

Reclamation service (U. S.)

Cost of reclamation service and other irrigation projects in Colorado. J. E. Field. Eng N 70:348-55 Ag 21 '13

Harnessing the public water power. C. J. Blanchard. il Sci Am 108:310-4 Ap 5 '13

Independent opinion on the Reclamation service. Eng N 70:987-8 N 13 '13

Investigation of Salt river reclamation project. Eng Rec 67:sup 39 My 10 '13

Report of subcommittee of the House committee on expenditures in the Interior department. Eng Rec 67:199 F 22 '13

State and federal co-operation in irrigation work in Oregon. E. G. Hopson. Eng Rec 68:685-6 D 20 '13

Ten years of government irrigation work; review of activities and experiences of U. S. reclamation service since passage of Newlands act. Eng Rec 67:128-30 F 1 '13; Same. Sci Am S 75:142-3 Mr 1 '13

Reconnaissance, Military. See Military reconnaissance

Recorders

Experience with a CO₂ recorder. H. R. Blessing. Power 38:465 S 30 '13

Improved pen for chart-recording instruments. diags Power 38:631 N 4 '13

Machine recorders and printing machinery. G. F. Card. diags Inland Ptr 51:571-5 Jl '13

Manifold and mixer for CO₂ recorders. M. B. Smith. diags Power 38:296-7 Ag 26 '13

Metering and recording the flow of fluids. J. W. Ledoux. il diags Met & Chem Eng 11:403-7 Jl '13

New flue-gas recorder: action and efficiency of the Ward carbon dioxide instrument. il Eng M 45:744-6 Ag '13

Orsat or CO₂ recorder? F. D. Harger. Power 38:344 S 2 '13

Orsat vs. CO₂ recorder. W. C. Edge. Power 38:406-7 S 16 '13

Service recorder. Ry Age 54:1610 Je 27 '13

See also Indicators; Meters

Records

Utility of efficiency-records in the manufacture of iron. J. J. Porter. Am Inst Min E 101:76:543-53 Ap '13

See also Card system in business; Electric railroads—Records; Engineering records; Factory management; Motor trucks—Records; Scientific management

Records, Municipal. See Municipal records

Records, Railroad. See Railroads—Records

Records for the works publication bureau. A. D. Williams. Iron Age 91:1066-9 My 1 '13

Rectifiers, Electric current. See Electric current rectifiers

Reflecting telescope. See Telescope

Reflection (light)

Diffuse reflecting power of various substances. W. W. Coblenz. *Il U S Bur Stand Bul* 9:283-325 '13

See also Reflectors

Reflectors

Basic principles of head-lamp illumination. C. R. Sugg. *Elec W* 62:741-2 O 11 '13
Data concerning incandescent-lamp reflectors. G. H. Stickney and A. L. Powell. *Elec W* 62:177-81 S 6 '13
Electric railway car lighting. J. R. Cravath. *Il Elec Ry J* 42:1657-8 N 15 '13
Industrial lighting. E. L. Elliott. *Ind Eng* 13:102-5, 174-5 Mr-Apr '13
Opaque reflectors. F. L. Godinez. *Il Arch Rec* 33:574-9 Je '13
Plating and refinishing railroad locomotive headlight reflectors in nickel. C. H. Proctor. *Metal Ind n s* 11:291-2 My '13

See also Headlights

Reforestation. *See* Forests and forestry

Refractories manufacturers' association

Organization meeting. Pittsburgh, April 22, 1:13. *Met & Chem Eng* 11:359 Je '13

Refractory materials

Carborundum refractories. F. J. Tone. *Met & Chem Eng* 11:484-6 S '13
Conditions to be met in blast furnace linings. A. N. Diehl. *Iron Age* 92:1165-7 N 20 '13
Occurrence and manufacture of refractories in Montana. W. H. Gunniss. *Am Inst Min E Bul* 81:2398-10 S '13
Refractories in the iron and steel industry. H. W. Croft. *Iron Age* 92:1163-5 N 20 '13
Same. *Iron Tr R* 53:1128-40 D 25 '13

See also Fire brick

Refrigeration. International congress of. *See* International congress of refrigeration

Refrigeration, Pipe-line

Pipe-line refrigeration. Power 38:827-8 D 9 '13

Refrigeration and refrigerating machinery

Absorption system. plan Power 37:419-20, 824-5 Mr 25, Je 10 '13
Air as a stimulator of corrosion in refrigerating systems. M. B. Smith. *Eng N* 69:1002-3 My 15 '13
Ammonia condensers. F. Ophüls. *Il Power* 38:335-7, 474-6 S 2, 30 '13
Analysis of costs in a refrigerating plant. *Elec W* 61:148-9 Ja 18 '13
Avoidable accidents in refrigerating plants. L. Block. *Power* 37:266 F 25 '13
Capacity of ammonia compressors. R. L. Mossman. *Power* 38:200-1 Ag 5 '13
Compression system. plans Power 37:747-8 My 27 '13
Cooling tower for small refrigerating plant. R. L. Mossman. plan Power 37:746 My 27 '13
Corrosion in refrigerating systems. M. B. Smith. *Power* 37:54-5; 38:268-70 Ja 14, Ag 19 '13
Design of an ammonia-compression refrigerating machine. *Ind Eng* 13:129-30 Mr '13
Drinking water systems in buildings. S. M. Weinthal. *Il plan Power* 37:343-4 Mr 11 '13
Electrical refrigeration for the butcher. R. L. Lloyd. *Il Elec R & W Elec'n* 62:33-8 Ja 11 '13
Elements of mechanical refrigeration. *Power* 37:337-8 My 6 '13
Figuring power for refrigerating plants. S. Sydney. *Power* 38:201-2 Ag 5 '13
Gas engine refrigerating plant. *diags Power* 37:122-4 Ja 28 '13
Hospital refrigeration and vacuum cleaning. H. L. Alt. *Dom Eng* 64:245-6 Ag 30 '13
Ice and salt mixtures. G. H. Crawford, jr. *Power* 37:825-6 Je 10 '13
Ice-making and refrigeration from the central station viewpoint. *Elec W* 62:635-6 O 4 '13
Indicating the compressor. P. Neff. *diag Power* 38:540-2 O 14 '13
Mechanical equipment of Stock yards inn. *Dom Eng* 62:37-8 Ja 11 '13
New refrigerating cycle. O. P. Ostergren. plan Power 37:265-6 F 25 '13

9th annual meeting of the Am. Soc. of refrigerating engineers. New York, Dec., 1913. *Power* 38:837-8 D 9 '13

Operating on the flooded system. R. L. Mossman. *diags Power* 38:133-4 JI 22 '13

Present status of the refrigerating industry in America. S. S. Van Der Vaart. *Power* 38:685-6 N 11 '13

Properties of saturated ammonia vapor. tables *Power* 38:59-62 JI 8 '13

Recent improvements in the refrigerating industry. *Il Sci Am* 109:261 O 4 '13

Refrigerating machines for the home. *Il Sci Am* 109:71 JI 26 '13

Refrigeration and central-station service. *Elec W* 62:848 O 25 '13

Refrigeration made simple. plan *Power* 37:342-3 Mr 11 '13

Refrigeration with carbon dioxide. *Power* 37:572 Ap 22 '13

Ritz-Carlton hotel refrigerating plant, N. Y. plans *Power* 37:497-8 Ap 8 '13

Running a refrigerating plant. W. L. Keil. *Power* 37:636 My 6 '13

3d International congress of refrigeration, Chicago, Sept., 1913. *Eng N* 70:679-81 O 2 '13

3d International congress of refrigeration, Chicago, Sept., 1913. *Power* 38:519-21 O 7 '13

Weighing ammonia to determine refrigerating capacity. F. Ophüls. plan *Power* 37:190-2 F 11 '13

Westinghouse Leblanc refrigerating system. *Il Int Marine Eng* 18:149-50 Ap '13

Westinghouse-Leblanc water vapor refrigerating machine. H. J. MacIntire. plan *Eng N* 69:211-2 My 1 '13

Winter work in a refrigerating plant. F. Ophüls. *Power* 37:420-2, 572-4 Mr 25, Ap 22 '13

See also Cold storage; Ice—Manufacture;

Ice houses; Liquid air; Refrigeration in

transportation; Refrigerator cars

Refrigeration in transportation

Facilities for replenishing ice for refrigeration in transit. C. M. Secrist. *Ry Age* 55:568 S 26 '13

Methods of pre-cooling perishable goods at loading stations. B. W. Redfearn. *Ry Age* 55:568-9 S 26 '13

Organization for handling refrigeration transportation. J. S. Leeds. *Ry Age* 55:569-71 S 26 '13; Same. *Ry & Eng R* 53:930-1 O 4 '13

Refrigeration of dressed poultry in transit. M. E. Pennington and others. *Il U S Agric Bul* 17:13-28 '13

Transportation of fruit and vegetables. E. D. Levy. *Ry Age* 54:239-42 F 7 '13

Refrigerator cars

Control and distribution of refrigerator cars in interstate commerce. H. M. Wigney. *Ry & Eng R* 53:1105 N 29 '13

Express refrigerator cars for Wells, Fargo & co. *Il plans Am Eng* 87:149-51 Mr '13

Organization for handling refrigeration transportation. J. S. Leeds. *Ry Age* 55:569-71 S 26 '13; Same. *Ry & Eng R* 53:930-1 O 4 '13

Proportions and insulation of refrigerator cars. M. R. Parks. *Ry Age (Mech ed)* 87:613-5 N '13

Refrigeration of dressed poultry in transit. M. E. Pennington and others. *Il U S Agric Bul* 17:13-28 '13

Refrigerator cars for the Union Pacific. *Il plans Am Eng* 87:263-5 My '13

Steel underframe refrigerator cars for express service. plans *Ry Age* 54:392-4 F 28 '13

Refuse and refuse disposal

Collection and disposal of Boston refuse. *Il plan Eng Rec* 67:512-5 My 10 '13

Destruction of garbage on the premises. F. A. Herring. *Munic Eng* 45:402 O '13

Economic combustion of low-grade or waste fuels; bagasse, culm and city refuse. D. M. Myers. *Il diag Eng M* 45:358-71 Je '13

Estimating the cost of garbage and refuse collection and haulage in Chicago. *Eng N* 69:106-7 Ja 16 '13

Refuse and refuse disposal—Continued.

- Fireproof shelter for refuse receptacles. *il* Sci Am 108:332 Ap 12 '13
- Four garbage-disposal contracts. Eng N 70: 718-9 O 9 '13
- Garbage disposal in Canton, Ohio. P. H. Weber. *il* Munic Eng 44:241-2 Mr '13
- Garbage disposal in medium-sized cities. Eng Rec 67:177-8 F 15 '13
- Garbage question in small cities. S: A. Greeley. Eng M 45:101-3 Ap '13
- Garbage reduction in Chicago. *il* plan Munic Eng 44:137-9 F '13
- Latest garbage-disposal contract at Los Angeles. Eng N 70:422 Ag 28 '13
- Mixed method garbage and waste disposal. E. B. Stuart. *diag* Munic Eng 45:25-30 Jl '13
- New York city's new garbage disposal contract. Eng N 70:267-8 Ag 7 '13
- New York's municipal cleaning campaign. Eng Rec 67:sup 41 Ap 26 '13
- Operation of Columbus garbage reduction plant. Eng Rec 68:220-1 Ag 23 '13; Same. Munic Eng 45:321-3 O '13; Same cond. Eng N 70:562 S 18 '13
- Question of garbage disposal. E. S. Leffel. *il* Munic Eng 44:572-3 Je '13
- Recoverable values of municipal refuse. G: H. Norton. Munic Eng 45:550-2 D '13
- Refuse disposal methods as adapted to Chicago; incineration recommended. Munic Eng 45: 528-32 D '13
- Selling garbage for reduction at Los Angeles. E. A. Phillips. Eng N 70:429-30 Ag 28 '13
- Street cleaning and garbage collection efficiency studies of the Chicago civil service commission. Eng N 69:123 Ja 16 '13
- Street cleaning and garbage collection methods in Chicago. Eng Rec 67:24-6 Ja 4 '13
- Uniform statistics of refuse collection and disposal. Eng N 70:678-9 O 2 '13
- Utilizing a city's wastes for filled land. Eng Rec 67:415-6 Ap 12 '13
- See also* Acid waste; Dumping appliances; Refuse destructors; Sewage disposal; Street cleaning; Waste products; Water pollution

Refuse destructors

- Design of refuse destructors: the generation of steam from waste and garbage incineration. J: Hammersley-Heenan. *il* Eng M 45: 890-3 S '13
- Islais creek incinerator at San Francisco. *il* plans Eng Rec 68:177-9 Ag 16 '13
- Night soil incinerating furnace at a contractor's camp. A. W. Tidd. *il* Eng N 69: 164-5 Ja 23 '13
- Sterling refuse destructor test. Met & Chem Eng 11:363 Je '13

Regina, Saskatchewan**Water supply**

- Tor Hill reservoir at Regina with reinforced-concrete roof slab resting on structural-steel frame. R. O. Wynne-Roberts. plans Eng Rec 68:267-8 S 6 '13

Reindeer

- Alaska reindeer industry. W. T. Lopp. Sci Am 108:113 F 1 '13
- Reindeer in Alaska. A. W. Williams. Sci Am 108:7 Ja 4 '13

Reinforced concrete. See Concrete, Reinforced**Relays, Protective. See Electric protective apparatus****Relief maps**

- Rome of Constantine reconstructed in a model 36 feet long and 20 feet wide. maps Sci Am S 76:68-71 Ag 2 '13
- Use of relief maps in mine surveying. H. G. Henderson. *il* Sci Am S 75:101-2 F 15 '13

Religious art. See Church architecture**Remick, Arthur T.**

- Three cottages and a studio: recent work of Arthur T. Remick. A. T. Covell. *il* Arch Rec 34:306-17 O '13

Rensselaer polytechnic institute, Troy, N. Y.

- Equipment of a modern engineering school. *il* plans from Tr R 53:201-8 Jl 31 '13

- Swimming pool in the new gymnasium. plan Eng N 69:256-7 F 6 '13

Rent

- Fallacy of including interest and rent as part of manufacturing cost. A. L. Dickinson. J Account 16:89-98 Ag '13

See also Mineral lands

Reports, Engineering. See Engineering reports**Republic, Washington**

- Ore-treatment at Republic. F. A. Thomson. Am Inst Min E Bul 73:51-64 Ja '13
- San Poll mill. E: C. Morse. Am Inst Min E Bul 73:79-84 Ja '13

Republic iron and steel company

- Profits for six months ended Dec. 31, 1912. show gain on same period in 1911. Iron Age 91:493 F 20 '13

Research, Municipal. See Municipal research**Research, Scientific. See Scientific research****Reservoirs**

- Cleaning a large settling reservoir at Cincinnati. J. W. Ellms. *il* Eng Rec 67:689-91 Je 21 '13
- Control of the Mississippi floods. C. D. Townsend. *il* Sci Am S 75:282 My 3 '13
- Controlling Cherry creek floods, Denver. Eng Rec 68:81-2 Jl 19 '13
- Creating a subterranean river ninety miles in length; how Catskill water is brought to New York. *il* Sci Am 108:198-200 Mr 1 '13
- Effect of proposed storage reservoirs on stream flow and water power on the lower Chippewa river, Wis. C. B. Stewart. map Eng N 70:246-8 Ag 7 '13
- Effect of reservoirs on Dayton flood. Eng Rec 68:146-7 Ag 9 '13
- Failure of reservoir at Johnson City, Tenn. C: C. Hopkins. Eng Rec 67:675 Je 14 '13
- Failure of reservoir at Johnson City, Tenn. A. H. Purdue. *diag* Eng Rec 67:600 My 31 '13
- Flood-prevention and water-conservation measures in Germany. *il* map Eng Rec 68: 72-4 Jl 19 '13
- Henne dam and reservoir built by German water users' association. K. C. Grant. *il* Eng Rec 67:415 Ap 12 '13
- How to repair the Nashville masonry reservoir. R. Hering. plan Eng N 69:278-80 F 6 '13
- Miami and Erie canal feeder reservoirs during Ohio floods. *il* Eng Rec 67:375-6 Ap 5 '13
- Mississippi problem. N. J. Noble. Sci Am 108: 335 Ap 12 '13
- Nashville reservoir—why it failed and how it will be repaired. R. Hering. plan Eng Rec 67:134-5 F 1 '13
- Ohio reservoirs during the March floods. M. Knowles. *il* Eng Rec 67:439-42 Ap 19 '13
- Partial failure of reservoir lining, Johnson City, Tenn. D. R. Beeson. *il* Eng N 69: 234-6 Ja 30 '13
- Problem of flood control. C. M. Townsend. Eng N 69:801-2 Ap 17 '13
- Relation of the proposed Pittsburgh flood reservoir system to navigation. Eng Rec 67:519-20 My 10 '13
- Reservoir regulation for the Ottawa river. E. Low. Eng N 69:25 Ja 2 '13
- Reservoirs at the headwaters of the Mississippi river. Eng Rec 67:436 Ap 19 '13
- Seepage losses in irrigation systems; their economic significance. E. G. Hopson. *il* Sci Am S 75:56-9 Ja 25 '13
- Tor Hill reservoir at Regina with reinforced-concrete roof slab resting on structural-steel frame. R. O. Wynne-Roberts. plans Eng Rec 68:267-8 S 6 '13
- See also* Dams; Irrigation; Retaining walls; Spillways; Water supply engineering; Water towers; Water works

Reservoirs, Concrete

- Construction by day labor in Minneapolis: methods and costs of concrete vaulting over city reservoir. W. N. Jones. *il* Eng Rec 67:424-6 Ap 19 '13

Reservoirs, Concrete—Continued.

- Covered concrete reservoir at Lowell, Mass. il plan Eng Rec 67:193-4 F 15 '13
- Design of Muskogee, Okla., concrete reservoir. A. Potter. il Eng Rec 68:616-8 N 29 '13
- Failure of groined arches at Baltimore's new water-filtration plant. J. W. Armstrong. il Eng Rec 68:538-40 N 15 '13
- Failure of partially constructed groined arch roof, Baltimore. E. B. Whitman. il plans Eng N 70:1100-4 N 27 '13
- Five-million gallon reinforced concrete reservoir at Asheville, N. C. F. C. Perkins. il Munic Eng 44:79 F '13
- Georgetown reservoir, District of Columbia, new sedimentation basin. plan Eng N 69:766-7 Ap 17 '13
- Increasing settling efficiency of Georgetown reservoir. il Eng Rec 67:314 Mr 22 '13
- New reinforced concrete reservoir at Council Bluffs. plans Eng Rec 67:39-40 Ja 11 '13
- New York city's water supply system: Kensico reservoir. il Sci Am S 75:140 Mr 1 '13
- Repairs to breaks in St. Louis reservoir walls. E. E. Wall. il Eng Rec 67:585-6 My 24 '13
- Traveling plant for casting concrete blocks for Kensico dam, Valhalla, N. Y. il Eng Rec 67:528 My 10 '13

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- Resonance in wood. Sci Am 109:190 S 6 '13

Resources. See Conservation of resources; Natural resources**Respiration, Artificial**

- Artificial respiration with a lemon squeezer. A. C. Muller. il Sci Am 108:7 Ja 4 '13
- Lungmotor artificial respirator. il Eng & Min J 96:791-2 O 25 '13
- Method of testing Draeger oxygen helmets at the Copper Queen mine. C. A. Mitke. il Am Inst Min E Bul 79:1169-72 Jl '13
- Oxygen fed and driven device for artificial respiration. il Sci Am 108:117 F 1 '13
- Schaefer method of resuscitation. il Colliery 34:53-4 Ag '13
- Training with mine-rescue appliances. J. W. Paul. Eng M 44:946-8 Mr '13
- See also Pulmotor

Respiration calorimeters

- Respiration calorimeter. Sci Am 108:16-7 Ja 4 '13

Respiratory apparatus. See Respiration, Artificial**Respiratory organs**

- Blunders made by nature; disease of the respiratory tract and circulation. A. Maverick. Sci Am S 76:171-2 S 13 '13
- See also Respiration, Artificial

Rest rooms

- Women's comfort stations at Pasadena, Cal. A. C. Shaver. il plans Dom Eng 63:210-1 My 24 '13

Resuscitation. See Respiration, Artificial**Retaining walls**

- Diagram of cost of retaining walls. E. F. Kriegsman. Eng Rec 68:157 Ag 9 '13
- Grouting a bank revetment with molten slag. il Eng N 69:263 Ja 30 '13
- How not to build a retaining wall. K. A. Albert. plan Eng Rec 68:420 O 11 '13
- How not to build a retaining wall. R. W. Gelder; D. N. Becker. Eng Rec 68:561 N 15 '13
- How not to build a retaining wall. L. E. Moore. il Eng Rec 68:324 S 20 '13
- How not to build a retaining wall. L. E. Moore; K. A. Albert. Eng Rec 68:594-5 N 1 '13
- Proposed scheme of constructing underground retaining walls. G. S. Rice. Ry & Eng R 53:828-9 Ag 30 '13
- Underpinning a stone retaining wall of Trinity churchyard for Lexington avenue subway. Eng Rec 68:362-3 S 27 '13
- See also Dams; Earthwork; Railroads—Construction; Reservoirs

Retaining walls, Concrete

- Concrete retaining walls in Pittsburgh. il Concrete Cem 1:98 D '12
- Design of standard reinforced-concrete retaining walls. H. M. Gibb. diag Eng N 70:170-2 Jl 21 '13
- Hollow reinforced-concrete triangular boxes at three-level crossing of creek, railroad and avenue at Montclair, N. J. Eng Rec 68:636-7 D 6 '13

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- Searchlight revolver. il Sci Am 109:439 D 6 '13

Rheostats

- Liquid rheostats for large alternating-current motors. diag Elec W 61:1275-6 Je 7 '13; Same. Power 37:819 Je 10 '13; Same. Eng & Min J 96:89 Jl 12 '13
- New type of water rheostat. J. N. Clarke. il Sci Am 108:271 Mr 22 '13
- Rheostats for battery charging. il Automobile 28:37-9 Ja 2 '13
- Water rheostats. R. L. Daugherty. il plan Power 37:857-8 Je 17 '13

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- Proposed port of Richmond, Cal., in San Francisco bay. Eng N 69:145 Ja 23 '13

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- Dr. Riedler's science popularized. Automobile 28:891-2 Ap 21 '13

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- Moving pictures as targets for marksmen. il plan Elec W 62:302 Ag 9 '13
- Teaching soldiers how to shoot: how artificial landscapes and moving pictures are used. H. Bannerman-Phillips. il Sci Am 109:5-6 Jl 5 '13
- See also Target practice

Rifles

- Remington negative angle sighting system. il Mach 19:603-6 Ap '13
- Vibration of rifle barrels. F. Carnegie. Sci Am S 75:186-7 Mr 22 '13
- See also Firearms; Guns; Rifle practice; Shooting

Rio de Janeiro (battleship)

- Brazilian battleship Rio de Janeiro. Int Marine Eng 18:132 Mr '13

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- Conservation of water resources for inland navigation. A. H. Scherzer. Munic Eng 44:429-30 My '13
- Studies of river bottoms at Philadelphia in relation to sewage disposal. map Eng N 70:318-9 N 6 '13
- See also Dams; Floods; Hydraulics; Locks (canals and rivers); Stream measurement; Water flow; Water pollution; Water power; Water supply

Regulation

- Aids to navigation on the Missouri river. F. C. Perkins. il Sci Am S 75:100-1 F 15 '13
- Concrete bank protection for deep rivers. B. Okazaki. il Eng N 69:512-3 Mr 13 '13
- Concrete revetment work on the Kansas river improvement. F. M. Clutter. il diag Eng Rec 67:632 Je 7 '13
- Factors in channel design. Eng Rec 67:242-3 Mr 1 '13
- Floods and the problems of river regulation. C. W. Baker. map il Sci Am 108:348-401 My 3 '13
- Improvement of the Cuyahoga river at Cleveland, Ohio. map Eng N 69:593-4 Mr 20 '13

Rivers—Regulation —Continued.

Knights Landing cut project in the Sacramento valley. Eng Rec 67:298-9 Mr 15 '13
Mississippi problem. J. LaForest. Sci Am 108: 355 Ap 19 '13

Need for scientific river regulation. Eng N 69:734-6 Ap 10 '13

Newlands river regulation plan. Eng N 70: 470-2 S 4 '13

Preliminary report on straightening of Cuyahoga river. il map Eng Rec 67:546 My 17 '13

St. Lawrence ship channel improvements between Montreal and Quebec. H. C. Plummer. map il Sci Am 109:182-3 S 6 '13

Scow for submarine-rock drilling in deepening of the channel of East river. il plan Eng Rec 68:600-1 N 29 '13

Shenango river-regulation project in Pennsylvania. Eng Rec 67:310-1 Mr 22 '13

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Concerning railway drawbridges and river rights. Eng N 69:175-6 Ja 23 '13

Drawbridges over rivers having limited navigation. C. E. Smith. Eng N 69:151-2 Ja 23 '13

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Failure of piston-rod riveting. diags Power 38:735 N 18 '13

Riveting in a hand-press. G. W. Smith. diags Mach 19:390 Ja '13

Riveting with compressed air. il Sci Am 109: 8 J 5 '13

Riveting machinery

Electric riveting. Ry Age (Mech ed) 87:394-5 J 1 '13

Electric riveting. il Ry & Eng R 53:854 S 6 '13

Watson-Stillman car coupler shearing and riveting press. il Mach 19:70 S '12

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Machine forging. D. T. Hamilton. il diags Mach 19:581-5, 707-10 Ap-May '13

Riveting pressures. Eng Rec 67:589 My 24 '13

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Hammer drills in highway construction. Eng Rec 68:137 Ag 2 '13

Machinery in highway construction. A. N. Johnson. Munic Eng 44:477-8 My '13

Modern road-making machinery and its use. T. R. Agg. Eng N 69:310-1 F '13 '13

Paved roads and road-laying machinery. il Sci Am S 76:309-10 N 15 '13

Protection and upkeep of road equipment. D. J. Hauer. Concrete Cem 3:219-20 N '13

Recent improvements in macadam road machinery. A. W. Dean. Eng N 70:603-4 S 25 '13

See also Road rollers

Road materials

American and British road tars: comparative analyses. W. W. Crosby. Eng Rec 68:703 D 20 '13

Cost and value of road materials. Munic Eng 45:223 S '13

Testing road materials. P. Hubbard. Eng Rec 68:700-1 D 20 '13

Tests of road-building rocks. Eng Rec 68: 101-2 J 1 26 '13

See also Asphalt; Tar

Road models

Earth and sand-clay roads. il Sci Am S 76: 299-302 N 8 '13

Paved roads and road-laying machinery: road construction illustrated by models. il Sci Am S 76:309-10 N 15 '13

Road models of the Office of public roads, from Roman times to the present day. il Sci Am S 76:280-2 N 1 '13

Road resistance. See Road testing**Road rollers**

Cost of hauling with road roller. R. G. Griffith. Munic Eng 45:458 N '13

Three-axle water ballast motor roller. il Sci Am 109:439-40 D 6 '13

See also Road making machinery

Road testing

Dynamometer wagon for road-resistance tests. il Eng Rec 68:631-2 D 6 '13

See also Road materials; Road models

Road traffic

Design of road as affected by traffic. Munic Eng 44:190-1 Mr '13

Motor traffic in Massachusetts. J. E. Sullivan. Automobile 29:543-5 S 25 '13

Necessity for traffic census on highways. C. E. Foote. Eng Rec 67:300-1 Mr 15 '13

Special tracks for different vehicles. diag Automobile 28:1272 Je 19 '13

Traffic and wear of English highways. Eng Rec 68:638 D 6 '13

Traffic census on highways. L. I. Hewes. Eng Rec 67:556-7 My 17 '13

Roadmasters and maintenance of way association

31st annual convention, Chicago, Sept., 1913. Eng N 70:596-7 S 25 '13

31st annual convention, Chicago, Sept., 1913. Ry & Eng R 53:867-8 S 13 '13

31st annual meeting, Chicago, 1913. Ry Age 55:515-23 S 19 '13

Roads

American road builders' association: abstracts of some papers presented at the annual convention in Philadelphia, December, 1913. Eng Rec 68:672-4, 700-2 D 13-20 '13

American road builders' association: annual convention. Eng N 70:1256-7 D 18 '13

American road builders' assn.: proceedings of annual meeting at Philadelphia, Dec., 1913. Eng Rec 68:sup 48, sup 60 D 13-20 '13

Automobiles and improved roads. L. W. Page. il Sci Am 109:178 S 6 '13

Best road surfaces for different kinds of traffic. W. D. Sohler. Eng N 69:1206-7 Je 12 '13

Causes of wear and deterioration of roadways. L. J. Hewes. Eng N 70: 587-8 S 25 '13

Chevy Chase, Md. experimental road. il Munic Eng 45:511-4 D '13

Convict labor in road construction. J. H. Pratt. Eng Rec 68:701-2 D 20 '13

Design of road as effected by traffic. Munic Eng 44:190-1 Mr '13

Developing the ideal road. R. E. Crompton. Eng M 45:586-8 J 1 '13

Educational work in highway engineering. Eng Rec 68:114 Ag 2 '13

Good roads. Ry & Eng R 53:463 My 17 '13

Good roads and the cost of living. W. W. Finley. Concrete Cem 2:17-8 Ja '13

Good roads movement. Sci Am 108:492 My 31 '13

Grade and surface required on roads. il Munic Eng 44:24-7 Ja '13

Grading and graveling streets. C. C. King. il Munic Eng 45:182-3 Ag '13

Gravel roads—construction and maintenance. S. P. Hooker. Eng Rec 68:580 N 22 '13

Instructions for foremen and contractors on state road construction in Wisconsin. Eng N 70:291-3 Ag 14 '13

Lessons from the International road congress. E. D. Sohler. Eng Rec 68:405-7 O 11 '13

Letter by J. Loudon M'Adam, the road-builder. Eng N 70:118 J 1 17 '13

Merit system in road management. J. T. Doyle. Eng Rec 68:380 O 4 '13

Missouri good-roads days. B. Brooks. Eng Rec 68:336 S 20 '13

Modern road-making machinery and its use. T. R. Agg. Eng N 69:310-1 F 13 '13

Motor truck in contracting and construction work: road-making and paving. R. W. Hutchinson, Jr. Eng M 46:77-94 O '13

Object-lesson and experimental roads. U S Agric Bul 53:1-33 '13

Permanent and impermanent elements of roads. Eng Rec 68:338-9 S 27 '13

Roads—Continued.

- Permanent roads an economic necessity. H. W. Perry. *il Sci Am S 76:168-70 S 13 '13*
 Plant for road building. *Eng Rec 67:27-8 Ja 4 '13*
 Plate-railways for road and steam traffic. G. N. Fell. *Eng M 44:98-101 O '12*
 Problem of economic road construction. *Eng N 70:619-22 S 25 '13*
 Prospective opportunities for highway engineers in a national highways department. C. H. Davis. *Munic Eng 45:64-5 Ji '13*
 Road-building methods must be improved. *Automobile 29:181 S 11 '13*
 Standardizing highway construction. C. E. Foote. *il Sci Am 108:291 Mr 29 '13*
 3d International road congress at London, 1913. E. L. Corthell. *Eng N 70:182-4 Ji 24 '13*
 3d International road congress, London, June, 1913. *Eng Rec 68:sup 53-5 Ji 19 '13*
 Trained road men lacking in America. *Automobile 29:193 Ji 31 '13*
 Types of New York state roads. W. G. Harger. *il Eng N 70:1148-54 D 4 '13*
 Unit costs of suburban roads. L. C. Grabill. *Eng Rec 67:536 My 10 '13*
 Unsurfaced roads. W. S. Keller. *Eng Rec 68:378 O 4 '13*; Same. *Eng N 70:767 O 16 '13*
See also Dust; Highway law; Pavements; Road materials; Road models; Sidewalks; Speedways; Street cleaning; Streets; also Lincoln highway

Contracts

- Legal suggestions respecting road contracts. W. L. Bowman. *Eng Rec 68:408-9 O 11 '13*

Federal aid

See Roads—United States

Finance

- Distribution of accounts of road construction. *Munic Eng 44:524-7 Je '13*
 Financing road construction. *Eng Rec 67:676 Je 14 '13*
 Problems of administration. E. A. Stevens. *Eng Rec 68:673-4 D 13 '13*

See also Roads—United States

Maintenance and repair

- Constituent principles of highway maintenance. *Eng Rec 68:77-8 Ji 19 '13*
 Maintenance of Wayne county roads. *Concrete Cem 3:213-5 N '13*
 Progress reports of experiments in dust prevention and road preservation, 1912. *U S Pub Road Circ 99:1-51 '13*
 Protection and upkeep of road equipment. D. J. Hauer. *Concrete Cem 3:219-20 N '13*
 Repair and maintenance of highways. L. I. Hewes. *il U S Pub Road Bul 48:7-71 '13*

Alabama

- Highway improvements in north Alabama. P. S. Fitzgerald. *Eng Rec 68:626-7 D 6 '13*

California

- California concrete road near Roseville. *il Eng Rec 68:389 O 4 '13*
 California's \$18,000,000 state highway system. A. B. Fletcher. *Eng Rec 68:379 O 4 '13*
 Improving desert roads for motor-truck haulage between Blythe, Cal., and Blythe Junction. *il Eng N 69:1126-7 My 29 '13*
 Petrolithic road construction with costs of construction and maintenance. K. F. Postle. *il Munic Eng 45:246-51 S '13*

Canada

- Banff-Windermere motor road. *il Eng Rec 68:630-1 D 6 '13*

England

- English roads. W. D. Sohler. *Eng Rec 68:406 O 11 '13*
 Paving and road matters in England. C. O. Burge. *Eng Rec 68:196 Ag 16 '13*
 Traffic and wear of English highways. *Eng Rec 68:638 D 6 '13*

Europe

- European road building. C. A. Kenyon. *il Munic Eng 45:106-9 Ag '13*

- Europe's good roads. M. F. Mansfield. *il Sci Am 108:36-7 Ja 11 '13*

France

- French road maintenance costs \$1 a head. *Automobile 28:929 My 1 '13*
 Road legislation and syndic associations in France. M. de Pulligny. *Concrete Cem 1:78 D '12*
 Roads in France. W. D. Sohler. *Eng Rec 68:405-6 O 11 '13*

Illinois

- Choosing highway superintendents under new Illinois law. W. R. Robinson. *Eng Rec 68:376 O 4 '13*

Maryland

- Systematizing purchase of road materials and equipments. H. G. Shirley. *Eng Rec 68:410 O 11 '13*

Michigan

- Cheapening road construction in Michigan. L. Wolcott. *il Munic Eng 44:236-8 Mr '13*
 Concrete roads in Wayne co. A. N. Johnson. *il diag Concrete Cem 3:217-8 N '13*
 Concrete roads of Wayne county, Mich. F. E. Rogers. *Concrete Cem 3:154, 189-90 O '13*; Same. *Eng N 70:730-2 O 9 '13*; Same cond. *Eng Rec 68:409 O 11 '13*
 Hard roads in Wayne county, Mich. *il map Eng Rec 68:340-2 S 27 '13*
 Maintenance of Wayne county roads. *Concrete Cem 3:213-5 N '13*
 Road building in Michigan. J. B. McArthur. *il Munic Eng 44:431-2 My '13*
 Road construction in Michigan. F. E. Rogers. *il Munic Eng 44:305-10 Ap '13*
 Road construction in Wayne county, Michigan. *il Munic Eng 44:131-4 F '13*
 Wayne county concrete roads. *Concrete Cem 3:110 S '13*
 Wayne county, Mich. concrete roads. E. N. Hines. *Concrete Cem 2:29-31 Ja '13*

Minnesota

- Winona county concrete roads. *il diag Eng Rec 68:159-60 Ag 9 '13*

Missouri

- Pulling Missouri out of the mud. *il Automobile 29:368-9 Ag 28 '13*

New York

- Highways of New York state. G. A. Ricker. *Eng Rec 68:388-9 O 4 '13*
 New specifications for New York state highway work. *Eng N 70:1203 D 11 '13*
 New York state road organization. *Eng N 70:982-4 N 13 '13*
 Revelations concerning New York state highway work. *Eng N 69:80-2 Ja 9 '13*
 Some New York state concrete roads. *il Concrete Cem 3:107-9 S '13*
 Types of New York state roads. W. G. Harger. *il diag Eng N 70:1148-54 D 4 '13*
 W. P. White suggests improvements in New York highways. *Concrete Cem 2:224-5 My '13*

See also New York (state)—Highway department

Ohio

- Experimental road work in Ohio. *Concrete Cem 3:131-5 S '13*

Pennsylvania

- Development and maintenance of highways in Allegheny county. J. S. Gillespie. *il Munic Eng 45:453-6 N '13*
 Progress on Pennsylvania's state highways. *Eng Rec 68:652-3 D 13 '13*

Philippine Islands

- Highway construction in the Philippines. *Eng Rec 68:641-2 D 6 '13*
 Philippine road maintenance problems. *il Eng N 69:701 Ap 10 '13*
 Public works in the Philippine Islands under the American régime. H. F. Cameron. *il Eng Rec 68:172-4 Ag 16 '13*

United States

- Bond issues for road improvement. S. E. Bradt. *Eng Rec 68:380-1 O 4 '13*
 Bourne scheme for federal aid to road construction. *Eng N 69:1074-5 My 22 '13*

Roads—United States—Continued.

- County and township organization of highway work. A. N. Johnson. Eng N 69:50-1 Ja 9 '13
 Federal aid in road construction. D. F. Houston. Eng Rec 68:407-8 O 11 '13
 Federal co-operation for good roads. Ry & Eng R 53:970-1 O 18 '13
 Good roads movement. Sci Am 108:352 Ap 19 '13
 Illinois plan for state road improvement. Eng Rec 67:422 Ap 19 '13
 Latest bill for national aid in road improvement; Swanson bill. Eng Rec 67:58 Ja 18 '13
 Permanent roads an economic necessity. H. W. Perry. il Sci Am S 76:168-70 S 13 '13
 Program for administering federal aid. S. F. Hooker. Eng Rec 68:672-3 D 13 '13
 Resolutions of the American road congress adopted at Detroit, Oct., 1913. Eng Rec 68:401 O 11 '13
 Road building in the United States. Automobile 28:665-7 Mr 20 '13
 3d American road congress. Detroit, Mich., Sept., 1913. Eng N 70:726-7 O 9 '13
 3d American road congress. Detroit, Mich., Sept., 1913. Sci Am 109:238 S 27 '13
 3d American road congress: topics discussed. Automobile 29:646-7 O 9 '13
 Transcontinental hodge-podge. E. L. Ferguson. il Automobile 28:877-81, 920-3, 974-7, 1018-21 Ap 24-May 15 '13
 Work of Office of public roads, 1912-13. Eng Rec 68:689-90 D 20 '13

Wisconsin

- Instructions for foremen and contractors on state road construction in Wisconsin. Eng N 70:291-3 Ag 14 '13

Roads, Bituminous

- Bituminous construction. S. D. Foster. Eng Rec 68:379-80 O 4 '13
 Bituminous surfaces for roads. Munic Eng 44:341-3 Ap '13
 Construction of surfaces with bituminous materials: a study of the causes of some failures encountered. A. H. Blanchard. Concrete Cem 1:76-7 D '12; Same. Sci Am S 75:38-9 Ja 18 '13
 Experimental pavement in Philadelphia. il Eng Rec 68:628-9 D 6 '13

See also Pavements, Asphalt

Roads, Brick

- Brick paving for country roads; preparation, construction and cost. V. M. Peirce and C. H. Moorefield. Eng M 46:283-6 N '13
 Brick road construction. J. M. McCleary. Eng Rec 68:407 O 11 '13
 Brick road the cheapest and most economical. il Munic Eng 45:60-2 Jl '13
 Brick roads of Cuyahoga co., Ohio. J. M. McCleary. Eng N 70:749-51 O 16 '13
 Vitified brick as a paving material for country roads. V. M. Peirce and C. H. Moorefield. il U S Agric Bul 23:1-31 '13

See also Pavements, Brick

Roads, Concrete

- Bituminous gravel concrete pavement. Eng Rec 67:135 F 1 '13
 California concrete road near Roseville. il Eng Rec 68:389 O 4 '13
 Carlinville, Ill. concrete road cost data. A. N. Johnson. il Concrete Cem 2:119-20 Mr '13
 Cause and the prevention of cracking in concrete roads. H. S. Spackman. Concrete Cem 3:261-3 D '13
 Chevy Chase experimental concrete road. il Eng Rec 67:719-20 Je 28 '13
 Concrete highway construction. A. N. Johnson. Concrete Cem 1:72-5 D '12
 Concrete road building—four fundamentals. il Concrete Cem 3:99 S '13
 Concrete road construction. A. N. Johnson. Eng N 70:627-8 S 25 '13
 Concrete road construction near Milwaukee. H. J. Kuelling. Concrete Cem 2:221-3 My '13
 Concrete road in Cook county, Illinois. il Eng Rec 68:653-4 D 13 '13
 Concrete road in Maryland. H. G. Shirley. Concrete Cem 3:104-5 S '13

- Concrete road organization. G. F. Haskell. Munic Eng 45:359-61 O '13
 Concrete roads. E. M. Hines. Eng M 45:415-7 Je '13

- Concrete roads: abstract of discussion by A. N. Johnson, before 3d American road congress. Eng Rec 68:471 O 25 '13
 Concrete roads: favorable and unfavorable data. il Munic Eng 45:408-14 N '13
 Concrete roads in Wayne co. A. N. Johnson. il diag Concrete Cem 3:217-8 N '13
 Concrete roads—Michigan and elsewhere. Concrete Cem 2:271-8 Je '13
 Concrete roads of Wayne county, Mich. F. E. Rogers. Concrete Cem 3:154, 189-90 O '13; Same. Eng N 70:730-2 O 9 '13; Same cond. Eng Rec 68:409 O 11 '13
 Construction notes and cost data on concrete road work at Chevy Chase, Md. il Concrete Cem 3:100-2 S '13
 Cost figures on four concrete roads. il Concrete Cem 2:223-5 My '13
 Details of drainage and foundations of concrete roads. W. A. McIntyre. Concrete Cem 3:27 Jl '13
 Expansion and contraction measurement of concrete roadways. A. T. Goldbeck. il Eng Rec 68:76 Jl 19 '13
 Experimental road work in Ohio. Concrete Cem 3:131-5 S '13
 Hard roads in Wayne county, Mich. il map Eng Rec 68:340-2 S 27 '13
 Machinery in highway construction. A. N. Johnson. Munic Eng 44:477-8 My '13
 Maintenance of Wayne county roads. Concrete Cem 3:213-5 N '13
 New York state jointless concrete road. C. A. Rice; W. G. White. Concrete Cem 2:245 Je '13
 Riverbank experimental road between Sacramento and Riverbank, Cal. il Eng Rec 67:258-9 Mr S '13
 Road building kinks. il Concrete Cem 3:102-6, 130-5 S '13
 Road building results. Grand river road, Wayne county, Mich. il Concrete Cem 3:137-8 S '13
 Road-roller test of 4-inch concrete highway slab. Eng Rec 68:432 O 18 '13
 Securing the proper mix. il Munic Eng 45:286-8 S '13
 Some New York state concrete roads. il Concrete Cem 3:107-9 S '13
 Three types of country roads on concrete base. Concrete Cem 2:192-3 Ap '13
 Wayne county, Michigan, concrete roads. Concrete Cem 3:110 S '13
 Wayne county, Mich., concrete roads. E. N. Hines. Concrete Cem 2:29-31 Ja '13
 Winona county, Minn., concrete roads. il diag Eng Rec 68:159-60 Ag 9 '13
 Wisconsin concrete road construction. Eng Rec 67:292 Mr 15 '13
 Wisconsin's concrete roads. A. R. Hirst. Concrete Cem 3:138 S '13

See also Pavements, Concrete

Roads, Macadamized

- Earth and sand-clay roads. il Sci Am S 76:301-2 N 8 '13
 Macadam road construction statistics. J. McNeal. Munic Eng 45:253-5 S '13
 Oiled macadam for residence streets in San Bernardino. Eng Rec 67:576 My 24 '13
 Recent improvements in macadam road machinery. A. W. Dean. Eng N 70:603-4 S 25 '13
 Repair and maintenance of highways. L. I. Hewes. il U S Pub Road Bul 48:9-35 '13
 Road construction in Michigan. F. F. Rogers. il Munic Eng 44:305-10 Ap '13
 Selection of materials for macadam roads. L. W. Page. Eng Rec 68:377 O 4 '13
 Treatment of worn out and raveled macadam road surfaces. E. A. Stevens. Eng N 70:728-9 O 9 '13; Same cond. Eng Rec 68:409-10 O 11 '13

Roads, Oiled

- Petrolithic road construction with costs of construction and maintenance. K. F. Posette. il Munic Eng 45:246-51 S '13

Roads, Plank

Building a paved roadway across a swamp.
J. Owen. Eng N 69:600-1 Mr 27 '13

Roads, Tarred

Tar bonded roads in Cincinnati. Sci Am 108:
500 My 31 '13

See also Tar

Roads and automobiles. *See* Automobiles and roads**Roasters.** *See* Furnaces**Rochester, Nevada**

Rochester, Nevada's newest boom camp. H.
C. Cutler. il map Eng & Min J 95:355-6 F
15 '13

Rock cutting machinery

Duplex rock channeller with turntable. Eng
N 69:409-10 F 27 '13

Rock-removing machinery of the Suez canal.
J. Boyer. il Sci Am 108:107 F 1 '13

Rock drills

Churn drill holes for blasting. Eng & Min
J 96:351 Ag 23 '13

Classification and characteristics of air-act-
uated rock drills. Eng & Min J 95:420-1
F 22 '13

Drill tester for the shop. il diag Eng & Min
J 96:329-31 N 1 '13

Electric well drills in a cement quarry. Eng
Rec 68:128-9 Ag 2 '13

Free piston gasoline rock drill. il Eng N 70:
913 N 6 '13

Gasolene rock drill, made by Rice gasolene
rock drill co. il Ry Age 55:780-1 O 24 '13

Hammer drills in highway construction. Eng
Rec 68:137 Ag 2 '13

Leyner flexible-foot drill column. diag Eng
& Min J 96:594 S 27 '13

Modern American rock drill practice. Eng &
Min J 95:339-40 F 8 '13

Modern American rock drill practice. L. B.
McDonald. Eng & Min J 95:434 F 22 '13

Results of drill-steel tests on the Rand. Eng
& Min J 96:786-7 O 25 '13

Rock-drill lubrication. Eng & Min J 96:489-90
S 13 '13

Rock-drilling economies. W. L. Saunders. il
Am Inst Min E Bul 81:2199-2224 S '13

Scott gasoline rock drill. il Ry & Eng R 53:
174-5 F 22 '13; Colliery 33:463-4 Mr '13;
Eng N 69:776-7 Ap 17 '13

Scow for submarine-rock drilling in deep-
ening of the channel of East river. il plan
Eng Rec 68:600-1 N 29 '13

Testing rock drills. Eng & Min J 96:33-4
Jl 5 '13

Water flushed rock drills in the Mount Royal
tunnel. il Eng Rec 67:64 Ja 18 '13

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Rock Island arsenal

Filter plant. il diags Eng Rec 68:609-10 N
29 '13

Rocks

Preparation of rock sections. A. L. Flagg.
Eng & Min J 95:1135-6 Je 7 '13

See also Joints (geology); Limestone;
Sandstone

Rocks, Igneous

Breaking qualities of rocks. Eng & Min J
95:326 F 8 '13

Classification of igneous rocks. H. Warth.
Sci Am S 75:330-1 My 24 '13

Rod mills. *See* Rolling mills**Roentgen-rays.** *See* X rays**Rolf, James, jr.**

San Francisco's mayor. por Munic Eng 44:
421-2 My '13

Roller-bearings

Ball and roller journal bearings. R. H. Grant.
il Mach 19:35-6 S '12

Hyatt roller bearings applied to mine cars.
J. A. Schroeder. diag Colliery 34:173 O
'13

Roller-bearing support of figure on the Cam-
panile. plan Eng Rec 67:111 Ja 25 '13

Series of tests of roller bearings. J. Good-
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Rollers, Road. *See* Road rollers**Rolling dams.** *See* Dams**Rolling mills**

American rolling mill practice. J. Puppe. Iron
Age 91:1172-9 My 15 '13

Comparative notes on steel rail rolling. R.
W. Hunt. Ry Age 54:390-1 F 28 '13; Same.
Am Inst Min E Bul 77:879-83 My '13

Discussion on Power requirements of rolling
mills (Sykes), and the Economical speed
control of alternating-current motors driv-
ing rolling mills (Meyer and Sykes). Am
Inst E E Pro 32:79-84, 822-31 Ja, Mr '13

Electric drive for reversing rolling mills. J.
A. Seager. diag Iron Tr R 53:335-7 Ag 21
'13

Electric drive for rolling mills. B. Wiley. Iron
Age 92:816-8 O 16 '13

Electric power distribution in steel mills.
S. C. Coey. Iron Tr R 52:410-2 F 13 '13

Electrically-operated, Canadian rolling mill.
il plans Iron Tr R 53:17-26, 32-3 Jl 3 '13

Power machinery of the American steel in-
dustry. R. L. Streeter. il Eng M 41:16-35,
204-21, 362-84, 491-510 O '12-Ja '13

Power required for rolling metal. V. E. Ed-
wards. Iron Age 92:1288-9 D 4 '13; Same.
Iron Tr R 53:1009-10 D 4 '13

Rolling mill industry. F. H. Kindl. il plans
diags Iron Tr R 53:245-52, 299-301, 339-41,
383-9 Ag 7-28 '13

Rolling mill practice in the United States.
J. Puppe. tables Iron Tr R 52:300-7, 1025-
9, 1075-81 Ja 30, My 1-8 '13

Rolling mills for scrap docks. G. G. Allen.
Ry Age 54:1138-9 My 23 '13; Same. Ry Age
(Mech ed) 87:305 Je '13

Tabular laying out of roll passes: its ap-
plication to four methods of rolling rails in
Germany. diags Iron Age 92:1436-7 D 25 '13

Well-designed rolling mill boiler plant. il plan
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Wire and wire rods. K. B. Lewis. il plans
diags Iron Tr R 53:581-9, 633-5, 685-7, 735-7
781-4 O 2-30 '13

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Rolling mills (machines)

Channel passes and the pitch line. Iron Age
92:1005 O 30 '13

Continuous-running two-high mill. A. Lam-
berton. diags Iron Age 91:1162-5 My 15
'13

Design of a three-high universal plate mill.
il plan Iron Tr R 53:881-2 N 13 '13

Electrically-driven, two-high reversing mill.
A. Lamberton. diags Iron Tr R 52:1177-80
My 22 '13

Progress in steel mill roll design. T. H. Ma-
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Three-high universal plate mill. il diag Iron
Age 92:1104-5 N 13 '13

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Standard machinery co. il Iron Age 92:
1438 D 25 '13

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Iron Tr R 52:1231-3 My 29 '13

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Milling cycloidal textile rolls. E. Viall. il
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79 F '13

Progress in steel mill roll design. T. H.
Mathias. diags Iron Age 92:966-71, 1036-40 O
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el 36 feet long and 20 feet wide. maps
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Roof failures

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Roofs

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Flat roofed fireproof house, F. Squires, il Arch & Bldg 45:1-7 Ja '13

Long-span rolling-mill roof truss of Republic iron and steel co., Youngstown, O. il plan Eng Rec 68:164 Ag 9 '13

Permanent roof construction, il plan Concrete Cem 2:47-9 Ja '13

Prepared composition roofings, Eng M 45: 265-8 My '13

Report of committee of Am. railway engineering assn. on roofing, Ry Age 54:717-23 Mr 21 '13

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Roofs, Concrete

Flat roofs for concrete residences, P. H. Bosworth, il Concrete Cem 3:197-9 N '13

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Efficiency of rope driving as a means of power transmission, E. H. Ahara, il plans Am Soc M E J 35:1211-33 Ag '13; Same cond. Ind Eng 13:422-4 O '13

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Rotary converter operation from single-phase railway power station, il Elec Ry J 41:298-9 F 15 '13

Rotary converter without shunt field, T. G. Thurston; S. A. Lewis, Power 37:416 Mr 25 '13

Sixty-cycle rotary converters, B. G. Lamme, Power 38:639-41 N 4 '13

Three-phase converter station at Stamford, Conn, il Elec W 61:471 Mr 1 '13

Twelve-pole, 1,000 kw, sixty-cycle rotary converters, il Elec Ry J 41:221 F 1 '13; Elec W 61:262-3 F 1 '13

Rotating discs

Calculation of the distribution of stresses in rotating discs of variable width, T. Pöschl, Am Soc M E J 35:714-7 Ap '13

Rothamsted experimental station, Harpenden, England

Rothamsted up to date, Sci Am 108:446 My 17 '13

Rotogravure. *See* Photogravure**Round table**

Evolution of the round table for the treatment of metalliferous slimes, T. Simons, il diags Am Inst Min E Bul 79:1173-95 Jl '13

Roundhouses

Engine house efficiency, Ry & Eng R 53:736-8 Ag 2 '13

Santa Fe roundhouse at Riverbank, Cal.; unit system of concrete construction, il Ry Age 51:1080-1 My 16 '13

Smoke-washers for roundhouses, plans Eng N 69:1004-5 My 15 '13

Superior European roundhouse facilities, H. W. Jacobs, il diags Am Eng 87:185-8 Ap '13

See also Locomotive shops; Railroads—Shops; Railroads—Terminals

Route models

New development in factory study; use of the Route model as a method of investigation, il Ind Eng 13:58-61 F '13

Routing systems

Keeping track of the work in the shop by the bulletin board and route sheet, il Ind Eng 13:453-8 N '13

See also Machine shop management

Royal George (steamship)

Salvage and repair of the steamship Royal George, R. G. Skerrett, il Sci Am 109:64 Jl 26 '13

Rubber

Akron; where 20,000 tires are made daily, L. V. Spencer, il Automobile 28:1287-91 Je 26 '13

Electrical requirements of certain machines in the rubber industry, C. A. Kelsey, il Am Inst E E Pro 32:1598-1604 Jl '13

Large list of prizes in 1914 rubber exhibit, Sci Am 109:153 Ag 23 '13

Making of a pneumatic automobile tire, E. R. Hall, il Sci Am 108:32-3 Ja 11 '13

Making sheet rubber, il Automobile 29:20-5 Jl 3 '13

New law of vulcanization; physical chemistry of rubber manufacture, A. O. Bourn, Sci Am 8 75:397-8 Je 21 '13

See also Tires

Rubber belts. *See* Belting**Rubber industry**

Akron strike conditions becoming normal, Automobile 28:626 Mr 13 '13

Rubber tires. *See* Tires**Rubbered fabrics**

Airship envelope fabric, Sci Am S 75:270 Ap 26 '13

Russell, E. W.

Country house with an idea; the Russell residence at Greenwich, Conn., Frank Eaton Newman, architect, C. M. Price, il Arch Rec 34:292-301 O '13

Russia**Industries and resources**

Chemistry in Russia in 1912, Met & Chem Eng 11:166 Mr '13

Unprecedented wave of prosperity in Russia, Iron Tr R 52:111-5 Ja 2 '13

Navy

New Russian submarine Karas, F. C. Coleman, il Int Marine Eng 18:106-7 Mr '13

Russia's submarine cruiser, R. G. Skerrett, il Sci Am 108:376 Ap 26 '13

Training ship for the Russian volunteer fleet, F. C. Coleman, il Sci Am S 76:49 Jl 26 '13

Rust. *See* Corrosion and anti-corrosives**S****Sacramento, Cal.****Bridges**

Southern Pacific bridge at Sacramento; double track, double deck, swing span, il Ry Age 54:846-9 Ap 11 '13

Sanitary affairs

Measuring the sewage of Sacramento, il plan Eng Rec 68:191-2 Ag 16 '13

Sacramento river

Knights Landing cut project in the Sacramento valley, Eng Rec 67:298-9 Mr 15 '13

Safety at sea

Compressed air as a protection for battleships, R. G. Skerrett, Sci Am 108:266 Mr 22 '13

Foam fire extinguishers, H. Williams, diag Eng M 45:263-5 My '13

Perils of the sea, Eng M 46:255-6 N '13

Safety at sea—Continued.

- Recommendations for use of American delegation to London international conference. *Sci Am* 109:358 N 8 '13
 Safety of life at sea. J. Donald. *J Fr Inst* 175:15-42 Ja '13
 Safety of life at sea. P. A. Hillhouse. *Sci Am* S 76:94-6 Ag 9 '13; Same. *Int Marine Eng* 18:395-6 S '13

Safety and sanitation conference

- Account of meeting at the Chemists' club. N. Y., Dec. 10-12. *Iron Tr R* 53:1125 D 18 '13

Safety committees. See Electric railroads—Safety committees**Safety devices and measures**

- Accident prevention. J. B. Douglas. *il Sci Am* S 76:232-4 O 11 '13
 Accident prevention at Stevens institute of technology. A. S. Kinsey. *il Am Mach* 38: 825-6 My 15 '13
 Accident talks to the children of Brooklyn. *il Elec Ry J* 42:1222-6 D 13 '13
 Cage with Munzner safety catches. *diag Eng & Min J* 96:112-3 J1 19 '13
 Central-station safety measures. *Elec W* 61: 965-6 My 10 '13
 Conservation of the worker. A. Cotter. *il Eng M* 45:489-505 J1 '13
 Dangers of street traffic and danger signals. F. R. Hutton. *Sci Am* S 75:235 Ap 12 '13
 Devices to make shop operations safer. *il Iron Age* 91:30-1 Ja 2 '13
 Don'ts for electricians. H. M. Nichols. *Pow-er* 38:820-1 D 9 '13
 General safety committee organized by Chicago railways company. *Elec Ry J* 41:892 My 17 '13
 Guarding against accidents: measures of the Universal Portland cement co. *il Munic Eng* 44:186-9 Mr '13
 Handling white lead: a sanitary mechanical system for eliminating dust. *il Sci Am S* 76:34 J1 19 '13
 How molders can be safeguarded from injury. *Foundry* 41:551 D '13
 How to prevent blindness among your employes. *il Foundry* 41:382-4 S '13; Same. *Iron Tr R* 53:414-6 S 4 '13; Same. *Ind Eng* 13:427-9 O '13
 Interesting safety device for tilting carboys. *il Iron Age* 91:533 F 27 '13
 Machinery safeguards in a German factory. *il Ind Eng* 13:467-71 N '13
 Mechanical safeguarding. F. A. Barker. *plans Am Ind* 13:sup 1-4 Ja '13
 Mechanical safeguarding—gears. F. A. Barker. *il Am Ind* 13:sup 1-4 F '13
 Morgan safety device for wire drawing blocks. *il plan Iron Tr R* 53:876-7 N 13 '13
 Museums of safety and their activities: a brief history of movement for prevention of industrial accidents. M. S. Hutton. *Mach* 19:31-3 S '12
 Nation wide movement for industrial safety. F. C. Schwedtmann. *Am Ind* 13:24-5 My '13
 New safety device for rolls. *il Ind Eng* 13: 79 F '13
 New safety device for spinning sheet metal. *il Sci Am* 109:208 S 13 '13
 Oakes safety device for punch presses. *il diag Ind Eng* 13:527 D '13
 Organization and the work of safety committees. T. G. Aston. *Elec Ry J* 42:103-4 J1 19 '13
 Positive acting press safety devices. *il Iron Age* 42:20-1 J1 3 '13
 Preventing accidents in melting departments. *il Iron Tr R* 52:693 Mr 20 '13
 Preventing steam boiler accidents. *Ind Eng* 13:480-1 N '13
 Prevention of accidents. *Elec Ry J* 41:884-5 My 17 '13
 Prevention of accidents in central stations. *Elec W* 61:986-9 My 10 '13
 Prevention of accidents in factories. *il Sci Am* S 76:212-4 O 4 '13
 Prevention of accidents in the foundry. A. E. Outerbridge, jr. *il Iron Age* 92:772-4 O 9 '13
 Protecting the eyesight of workmen. W. Talbot. *il Iron Age* 92:596 S 4 '13

Safeguarding belts, shafts and pulleys. *Ind Eng* 13:523-1 D '13

Safeguarding economizers: symposium. *Pow-er* 37:793-4 Je 3 '13

Safeguarding machinery at Hawthorne. *il Sci Am* 108:333-4 Ap 12 '13

Safeguarding motor-driven apparatus. D. C. Pultney. *il Ind Eng* 13:297-301 J1 '13

Safe guarding of circular saws. *il Am Ind* 11:sup 1-4 D '13

Safeguarding of overhead transmission. F. A. Barker. *il Am Ind* 13:sup 1-4 Ap '13

Safeguarding of overhead transmission. F. A. Barker. *diags Ind Eng* 13:253-6 Je '13

Safeguarding of transmission. F. A. Barker. *il Am Ind* 13:sup 1-4 Mr '13

Safeguarding overhead transmission. *diags Ry & Eng R* 53:897-8 S 20 '13

Safety as applied to grinding machinery. F. A. Barker. *il Am Ind* 13:sup 1-1 Je; sup 1-4 J1; 14:sup 1-4 Ag '13

Safety attachment for power presses. F. Goddard. *diag Am Mach* 38:829 My 15 '13

Safety engineering should form part of every engineering course. G. Gilmour. *il Sci Am S* 76:36-9 J1 19 '13

Safety first with the Inland steel co. *Eng & Min J* 95:1209-10 Je 14 '13

Safety gears for hoisting cages. A. H. Bromley. *Eng & Min J* 95:1159 Je 7 '13

Safety in iron and steel mills. L. H. Barnett. *Iron Age* 92:851 O 16 '13

Safety maxims for operating traveling cranes. *Ind Eng* 13:426 O '13

Safety measures adopted by Public service commission for First district of New York. *Elec Ry J* 41:821-2 My 3 '13; Same. *Elec W* 61:975-6 My 10 '13; Same. *Eng N* 69: 1131-2 My 29 '13

Safety progress in Pennsylvania. L. R. Palmer. *Iron Age* 92:942-3 O 23 '13

Safety rules—boiler erection. *Eng & Min J* 96:355 Ag 23 '13

Safety rules—boiler repair and operation. *Eng & Min J* 96:547 S 20 '13

Safety rules—construction operations. *Eng & Min J* 96:693 O 11 '13

Safety rules—electrical work. *Eng & Min J* 95:1293 Je 28 '13

Safety rules—employees underground. *Eng & Min J* 96:1071-2 D 6 '13

Safety rules—engine rooms. *Eng & Min J* 96: 501 S 13 '13

Safety rules—machine shop and machinery. *Eng & Min J* 96:643-4 O 4 '13

Safety rules—miscellaneous instructions. *Eng & Min J* 95:1197 Je 14 '13

Safety rules—steam shovels. *Eng & Min J* 96:401-2 Ag 30 '13

Safety rules—storing and thawing explosives. *Eng & Min J* 96:591-2 S 27 '13

Safety rules—structures. *Eng & Min J* 96: 596 S 27 '13

Safety rules—tracks, cars, trestles, etc. *Eng & Min J* 96:1121-2 D 13 '13

Suction lifter for use with punch presses. *il Elec W* 62:1179 D 6 '13

Tests of grinding wheel protection devices. R. G. Williams. *il Iron Age* 92:1278-80 D 4 '13; Same. *Sci Am* S 76:392-3 D 20 '13

Tests of safety devices for grinding wheels. *il Iron Tr R* 53:1045-9 D 11 '13

Three years of accident prevention: results of Eastman kodak co. *il Iron Age* 91: 1058-61 My 1 '13

Why "safety first" is sound economy. A. Haring. *Eng N* 70:1295-6 D 25 '13

Wire drawing block with automatic stop. *il Iron Age* 92:1036 N 13 '13

Work of Committee on safety and sanitation of Am. founders' assn. *Iron Age* 92: 1246-8 N 27 '13

See also Air brakes; Automobiles—Safety devices; Car couplings; Coal mines and mining—Safety measures; Electric protective apparatus; Finger guards; Goggles; Lightning conductors; Mining engineering—Safety measures; National council for industrial safety; Railroads—Safety devices; Railroads—Signals; Safety at sea; Safety lamps; Safety valves

Safety devices and measures—Continued.**Exhibitions**

First International exposition of safety and sanitation, New York, Dec., 1913. Iron Age 92:141-2 D 18 '13
 Industrial safety and sanitation devices on exhibition in New York. Iron Tr R 53:1129 D 18 '13

Safety lamps

Ability of the acetylene flame. E. M. Chance. Colliery 34:239-41 N '13
 Acetylene lamps in coal mines. Colliery 34:49-51 Ag '13
 Arnold carbide candle. il Eng & Min J 95:185 Ja 18 '13
 British tests for miners' safety lamps. Colliery 33:422 Mr '13
 Defense of the carbide lamp. Colliery 34:179 O '13
 Home-made acetylene lamp. A. L. Oke. diags Eng & Min J 96:447 S 6 '13
 Safety lamps and their care. J. W. Paul. il Eng M 46:276-9 N '13
 Test of safety lamps. Colliery 34:108-9 S '13
 Testing for firedamp with wire loop. H. Briggs. Colliery 33:439-41 Mr '13
 Use and care of safety lamps. Colliery 33:408 Mr '13
 Use and care of safety lamps. J. R. Watkins. Colliery 33:573-4 My '13

Safety lamps, Electric

Edison electric safety lamp. il Elec W 61:177 Ja 25 '13; Sci Am 108:90 Ja 25 '13
 Electric lamps for miners. Sci Am S 75:283 My 3 '13
 Miner's electric safety lamp. il Elec W 61:370 F 15 '13
 Portable electric mine lamps. Elec W 62:1165 D 6 '13
 Portable electric mine lamps. H. H. Clark. Eng M 46:165-7 O '13

Safety valves

Convenient safety valve chart. F. C. Blanchard. Power 37:235 F 18 '13
 Location of steam gages in setting safety valves. C. T. Rummel. diags Ry Age (Mech ed) 87:533-6 O '13
 Safety-valve problem. V. Bonn. Power 38:931-2 D 30 '13
 Safety valve rating. Power 37:716 My 20 '13
 Stationary-boiler pop safety valves. W. O. Rogers. diags Power 38:846-9 D 16 '13
See also Boiler explosions; Boilers; Steam engines; Valves and valve gears

Sailing vessels

Five-masted auxiliary sailing ship France. F. C. Coleman. il diags Int Marine Eng 18:566-10 D '13

St. Joe river

Establishing ex-post-facto gage heights. C. F. Brown. il map Eng N 69:1120-3 My 29 '13

St. Joseph lead company

Report for year ended April 30, 1913. Eng & Min J 95:1181-2 Je 14 '13

St. Lawrence river

St. Lawrence ship channel improvements between Montreal and Quebec. H. C. Plummer. il map Sci Am 109:182-3 S 6 '13

St. Louis, Missouri

St. Louis plans a central traffic parkway. plan Munic Eng 45:77-80 Jl '13

Architecture

Co-operative group planning. D. E. Tarn. il plans Arch Rec 34:467-75 N '13

Bridges

Carondelet park bridge, St. Louis, Mo. C. W. Martin. il plans Eng N 70:646-50 O 2 '13

Method of designing arches, Kingshighway viaduct, St. Louis. Eng Rec 67:136-7 F 1 '13

Municipal bridge approach, St. Louis: description and methods of construction. S. W. Bowen. il plans Eng N 69:94-100 Ja 16 '13

Railroads

Illinois traction system's St. Louis express and freight traffic methods. il map plan Elec Ry J 41:282-7 F 15 '13
 New cotton belt freight terminal. W. Haydock. il plan Ry & Eng R 53:73-5 Ja 25 '13; Same. Ry Age 55:218-20 Ag 8 '13
 Railway freight terminal. il plans Eng N 69:664-7 Ap 3 '13

Rapid transit

Report on traffic conditions in St. Louis. Elec Ry J 41:676-8 Ap 12 '13

Water supply

Efficiency of coagulating basins at St. Louis. Mo. W. F. Monfort. Eng N 70:396-8 Ag 28 '13; Same cond. Eng Rec 67:702-3 Je 21 '13

St. Louis mechanical water filters. E. E. Wall. il plans Eng N 70:808-13 O 23 '13

St. Louis & San Francisco railroad company

Frisco receivership. Ry & Eng R 53:506-7 My 31 '13

St. Louis & San Francisco and its bankers. Ry Age 54:1209 Je 6 '13

St. Louis & San Francisco receivership. Ry Age 54:1164-5 My 30 '13

St. Louis Southwestern railroad

Revenue expenses. map Ry Age 55:641-2 O 10 '13

22d annual report for year ended June 30, 1913. Ry Age 55:685-6 O 10 '13

St. Louis united railways company

Annual report, 1912. Elec Ry J 41:393-4 Mr 1 '13

Report on United railways of St. Louis. Elec Ry J 41:248-53, 676-8 F 8, Ap 12 '13

St. Paul, Minnesota**Bridges**

New bridge over the Mississippi river at St. Paul, on the C. G. W. Ry. map plan Ry & Eng R 53:50-1 Ja 18 '13

Water supply

Water-works organizations and operating methods; St. Paul, Minn., and San Diego, Cal. Eng N 70:475-7 S 4 '13

Salaries

Study of incomes of technically trained men. D. E. Rice. Sci Am 109:116 Ag 9 '13

See also Wages**Salesmen and salesmanship**

American vs. European salesmen abroad. J. L. Poole. Automobile 28:1299 Je 26 '13
 Buying, selling and advertising maxims. S. Dean. Iron Age 91:1002-4 Ap 24 '13

Good form—and knicks—for salesmen. H. G. Nye. Dom Eng 65:419 D 27 '13

House organ; its object—when published—made to the hour. Automobile 28:863 Ap 17 '13

Investigating an industry. W. Kent. Ind Eng 13:208-11, 293-6 My, Jl '13

Merit system for central-station salesmen and solicitors. Elec W 62:337 Ag 16 '13

Moses Iron's experiments—the salesman. D. L. Hanson. Dom Eng 64:182-5 Ag 16 '13

On the street. W. Ernest, pseud. Inland Ptr 52:58-60, 215-8, 377-81, O-D '13

Preccepts for machine tool salesmen. F. M. Ellis. Iron Age 91:836-8 Ap 3 '13

Printing salesman problem. G. P. Farrar. Inland Ptr 52:52-4 O '13

Salesmanship and advertising for plumbers. S. L. Krebs. Dom Eng 62:168-9 F 8 '13

Salesmanship in business building. S. L. Krebs. Dom Eng 64:300-3, 65:412-4 S 13, D 27 '13

Salesmen's system used by Pierce-Arrow distributing agent. Automobile 28: 684-6 Mr 20 '13

Salesroom work forms. Automobile 29:249-1 Ag 7 '13

Systems for salesmen becoming popular. Automobile 28:516 F 20 '13

See also Advertising; Business; Samples

Salt

Age of the ocean as determined by its salt contents. F. W. Clarke. *Sci Am S* 75:306 My 17 '13

Salt Lake City

Smokeless boilers in Salt Lake City. *Dom Eng* 63:86-7 Ap 26 '13

Salvage

Raising a wrecked Atlantic liner by compressed air. *Eng N* 70:419-20 Ag 28 '13

Salvage and repair of the steamship *Royal George*. R. G. Skerrett. *il Sci Am* 109:64 Jl 26 '13

Salvaging the Lutine. P. A. Hislam. *Sci Am* 108:450-1 My 17 '13

Samples

Keeping samples vs. shipping them. H. Kahler. *Am Ind* 13:27-9 F '13

Sampling ores. See Ore sampling**Sanatoriums**

Forced circulation hot water system with boilers used interchangeably for steam and hot water. sanatorium of the Metropolitan life insurance co., Mt. McGregor, N. Y. plan *Heat & Ven* 10:17-24 D '13 (to be cont)

Sewage treatment plant for Waverly Hill anti-tuberculosis sanatorium. P. H. Norcross. *il plans Eng N* 70:558-60 S 18 '13

San Bernardino, California**Streets**

Oiled macadam for residence streets. *Eng Rec* 67:576 My 24 '13

Sand

Compact Peekskill sand and gravel washing plant. *il plan Eng N* 69:514-5 Mr 13 '13

Economical sand and gravel plant. *il plan Eng N* 69:1066-7 My 22 '13

Improvements in sand and gravel washing. R. W. Dull. *il Concrete Cem* 2:129-31 Mr '13; Same. *Ry & Eng R* 53:202-3 Mr 8 '13

Proposed test of sand for concrete. *Eng Rec* 68:202 Ag 23 '13

Sand tests essential to good work. W. B. Reinke. *Concrete Cem* 3:84-6 Ag '13

Testing of sand for concrete. *Ry & Eng R* 53:740-1 Ag 2 '13

Use of sand on locomotives. F. E. Patton. *Ry Age (Mech ed)* 57:594 N '13

See also Cement; Concrete; Molding sand; Mortar

Sand, Molding. See Molding sand**Sand blast**

Evans high-pressure sand blast system. D. S. Ferris. *il plan Iron Age* 92:1034-5 N 6 '13

Sand blast machine with novel features. *il Iron Age* 92:187-8 Jl 24 '13

Sand blast plant. plan Foundry 41:168 Ap '13

Sand boats

Belgian sand-boats. *il Sci Am* 109:130 Ag 16 '13

Sand-cement. See Cement**Sand dunes**

Sand dunes: how they are reclaimed. *il Sci Am* 108:581 Je 28 '13

Sand sluicer. See Gold mines and mining**Sandalwood**

True sandalwood of India. *Sci Am* 108:558 Je 21 '13

Sanders

Air sander for interurban cars. F. G. Lister. *diags Ry Age (Mech ed)* 57:482 S '13

Air sander on interurban cars. *Elec Ry J* 42:419 S 13 '13

Vacuum sanders for Brooklyn. *diags Elec Ry J* 42:1063 N 15 '13

San Diego, California

Bulkhead and pier for the new port of San Diego, Cal. *il plan Eng N* 69:498-500 Mr 13 '13

Panama-California exposition

Progress. *il Eng Rec* 68:555 N 15 '13

Water supply

Drastic provisions of the San Diego, Cal., water-works ordinance. *Eng N* 70:478-9 S 4 '13

Rapid pump and pipe-line installation at San Diego. *il Eng Rec* 68:179-80 Ag 16 '13

Water-works organizations and operating methods. St. Paul, Minn., and San Diego, Cal. *Eng N* 70:475-7 S 4 '13

San Francisco, California

Port improvements at San Francisco. F. G. White. plan *Eng Rec* 68:49-50 Jl 12 '13

Architecture

New City Hall of San Francisco. *il plan Munic Eng* 45:419-23 N '13

Panama Pacific international exposition, 1915

Architectural plan: conceptions symbolized by the buildings. H. S. Roberts. *il Sci Am S* 76:360-1 D 6 '13

Description of the exposition site, the main courts and the great exhibit palaces. H. M. Wright. *il Sci Am* 109:433-6 D 6 '13

Head of the mining department. Charles E. Van Barneveld. *por Eng & Min J* 95:834 Ap 26 '13

International engineering congress to be held at the exposition. *Ry & Eng R* 53:496 My 31 '13

Lighting of the Panama-Pacific exposition. *Elec W* 61:1043-1 My 17 '13

Lighting the Panama-Pacific exposition, 1915. Power 37:797-8 Je 3 '13

Lighting, water-supply, sewerage, paving and transportation features. A. H. Markwart. *il plans Eng N* 70:1070-6 N 27 '13

Panama-Pacific exposition. A. H. Markwart. *il maps plans Eng N* 70:895-904 N 6 '13

Panama-Pacific illumination. *Eng Rec* 67:589 My 24 '13

Panama Pacific international exposition. J. H. G. Wolf. map *Eng N* 69:312-3 F 13 '13

Machinery hall

High eight-acre exposition building with a timber frame. H. D. Dewell. *il Eng Rec* 67:553-4 My 17 '13

Machinery hall. *il Am Mach* 38:881-2 My 22 '13

Machinery hall. *il diags Eng Rec* 68:237-40 Ag 30 '13

Moving picture records of a building in construction: Machinery hall. *il Sci Am S* 76: 52 Jl 26 '13

Rapid transit

Final report on San Francisco. *Elec Ry J* 41:844-52 My 10 '13

Progress in San Francisco transportation improvements. *Eng N* 69:908-9 My 1 '13

Reports on San Francisco conditions. *Elec Ry J* 41:62-6 Ja 11 '13

San Francisco municipal railway. map *Elec Ry J* 42:672-3, 686-8 O 11 '13

Street railway traffic congestion in San Francisco. *Eng Rec* 67:41 Ja 11 '13

Transfers between San Francisco's municipal and corporation street railways. *Munic Eng* 45:44-6 Jl '13

Water supply

Army engineers and Secretary Fisher on Hetch Hetchy and the San Francisco water-supply. *Eng N* 69:530-2 Mr 13 '13

Auxiliary water supply for the fire protection of San Francisco. A. J. Cleary. plans *Eng Rec* 68:107-19 Jl 26 '13

Opposition to Hetch Hetchy water supply. E. N. Bryan. *Eng Rec* 68:224 Ag 23 '13

Possibility of a ground-water supply for San Francisco. R. Hering. *Eng Rec* 67:334-5 Mr 22 '13

San Francisco water-supply hearing before Secretary of the Interior. J. H. McFarland; J. R. Freeman. *Eng N* 69:276-7 F 6 '13

San Francisco wins its long Hetch Hetchy fight. *Eng N* 70:1312 D 25 '13

San Francisco's water supply. A. L. Collins; R. Hering. *Eng Rec* 67:479-80 Ap 26 '13

San Francisco's water-supply problem. M. M. O'Shaughnessy. *Eng Rec* 67:420 Ap 12 '13

Soft mountain water. O. J. Todd. *Eng Rec* 67:620 My 31 '13

San Francisco bay

Building piers 30 and 32 at San Francisco. Eng Rec 68:633-4 D 6 '13
Proposed port of Richmond, Cal., in San Francisco bay. Eng N 69:145 Ja 23 '13

Sanitary chemistry

See also Air pollution; Refuse and refuse disposal; Sewage disposal; Smoke prevention; Water purification

Sanitary engineering

Emergency sanitation work in the flooded city of Dayton. C. F. Long. Eng Rec 67:448 Ap 19 '13

Seeing New York with the sanitary engineer. J. X. Cohen. Eng Rec 67:76-8 Ja 18 '13

See also Drainage; Dust removal; Filters and filtration; Heating; Municipal engineering; Plumbing; Public comfort stations; Refuse and refuse disposal; Sanitation; Sewage disposal; Sewerage; Smoke prevention; Street cleaning; Ventilation; Water pollution; Water purification; Water supply engineering

Sanitary laws. *See* Public health laws

Sanitary science. *See* Sanitary engineering; Sanitation

Sanitation

Camp Hill View sanitation. Catskill aqueduct. A. W. Tidd. il plans Eng N 70:752-9 O 16 '13

Perfectly sanitary letter. B. Brooks. Dom Eng 65:408-10 D 27 '13

Plumber and expert sanitation. W. Webb. Dom Eng 65:240-1 N 22 '13

Sanitary sleeping car. Sci Am S 75:414 Je 28 '13

Sanitary sleeping car. F. W. Fitzpatrick. Sci Am S 75:367 Je 7 '13

Sanitation of mining camps. C. H. Hair. Eng M 45:601-2 Jl '13

Sanitation of mining towns. J. H. White. Eng & Min J 96:73-4 Jl 12 '13

See also Air washing; Baths, Public; Disinfection and disinfectants; Factory sanitation; Hygiene; Mine sanitation; Plumbing; Public health; Sanitary engineering; School hygiene; Sewage disposal; Sewerage; Smoke prevention; Street cleaning; Ventilation; Water purification; Water supply

San Pedro, California**Harbor**

Harbor development at San Pedro. G. C. Muñoz. il plan Eng Rec 67:549-50 My 17 '13

Santa Barbara & suburban electric railway

Notes on the Santa Barbara & suburban electric railway. il Elec Ry J 41:857 My 10 '13

Santa Fe system. *See* Atchison, Topeka & Santa Fe railway

Sap

Circulation of sap in trees. il Sci Am S 76:221 O 4 '13

Sarah Sands (steamboat)

Burning of the Sarah Sands. F. B. C. Bradley. il Int Marine Eng 18:82-3 F '13

Sardines

French sardine industry. J. Boyer. il Sci Am 108:394 My 3 '13

Sault Ste. Marie canal

Traffic through the Sault Ste. Marie canal. Ry Age 54:1030 My 9 '13

Savings banks

German factory savings banks. C. Kohlmann. Am Mach 38:762 My 8 '13

See also Building and loan associations

Saw mills. *See* Sawmills

Sawdust

Extinguishing fires with sawdust. Eng & Min J 95:1149-50 Je 7 '13

Extinguishing of fires in lacquer with sawdust. E. A. Barrier. Eng N 69:217-8 Ja 30 '13; Same. Metal Ind n s 11:119-21 Mr '13

Sawdust as a fire extinguisher. Ind Eng 13:154 Ap '13

See also Wood waste

Sawing

Sawing a bridge with a wire. J. Boyer. il Sci Am 109:228 S 20 '13

Sawmills

Hydroelectric plant for sawmill use at Hartland, Vt. M. A. Hicks. il Elec W 61:1037-9 My 17 '13

Sawmill refuse as fuel in gas producers. C. E. Snyppe. Eng M 44:96-8 O '12

Saws

Cold metal saws of new design. il Iron Age 91:306-7 Ja 30 '13

Lea-Courtenay cold metal saw. il Mach 19:475-7 F '13

Recent cold metal cutting-off saw. il Iron Age 92:1047 N 6 '13

Safe guarding of circular saws. il Am Ind 14:sup 1-4 D '13

See also Woodworking machinery

Scaffolding

German ladder staging. il diags Eng N 70:606-8 S 25 '13

See also Shoring and underpinning

Scales, Track. *See* Track scales

Scales (weighing instruments)

Dial scales. F. E. Kaepfel. il diag Sci Am S 76:317 N 15 '13

Scale shops. Ry Age 55:300 Ag 15 '13

Scheelite

Concentration of scheelite. Met & Chem Eng 11:22 Ja '13

Scholarships and fellowships

See also Industrial fellowships

School children

See also Child study; Playgrounds; School hygiene

School hygiene

4th International congress on school hygiene, Buffalo, August, 1913. Heat & Ven 10:43-5 S '13

Illumination topics at International school hygiene congress, 1913. Elec W 62:464-6 S 6 '13

See also Open air schools; Schoolhouses—Heating and ventilation

Schoolhouses

Architecture of open air schools. J. R. Van Pelt. Heat & Ven 10:41-2 S '13

New development of the hollow square in school house planning. F. Squires. il plans Arch & Bldg 45:361-71 S '13

Washington Irving high school, New York city. il Arch & Bldg 45:190-3 My '13

Heating and ventilation

Downward ventilation in a Rockford, Ill., schoolhouse. C. E. Beery. Heat & Ven 10:23-30 Mr '13; Same cond. il Eng N 69:496-7 Mr 13 '13

Downward ventilation in a Rockford school. il Power 37:301-2 Mr 4 '13

Experiments in school room ventilation with reduced air supply through individual ducts. F. Bass. il Heat & Ven 10:16-24 Ag '13

Experiments on humidifying air at the Oliver Wendell Holmes school, Boston, Mass. C. F. Eveleth. plan Heat & Ven 10:13-20 O '13

Experiments on the ventilation of a schoolroom: review of the work and future plans of the Chicago ventilation commission. J. W. Shepherd. Heat & Ven 10:24-32 D '13

Heating and ventilating equipment of the Newark normal school, Newark, N. J. il plans Heat & Ven 10:21-6 My '13

Heating and ventilating the new Ainsworth school, Portland, Ore. J. Graham. diags Dom Eng 65:130-3 N 1 '13

Heating apparatus for the Froebel school. J. Graham. il Dom Eng 64:129 Ag 2 '13

School ventilation in New York city. C. E. A. Winslow. Heat & Ven 10:20-8 S '13

Lighting

School-house lighting. Elec W 62:465-6 S 6 '13

Schools, Corporation. See Corporation schools

Schools, Trade. See Trade schools

Schools and shops, Cooperation of
Apprenticeship on the Illinois Central. *Am Eng* 87:249-52 My '13
Educational experiment in Rochester. *Elec Ry J* 41:461 Mr 15 '13

Schoonmaker, Colonel

Influence of the personality of the railroad executive. *H. Emerson. Eng M* 44:481-6 Ja '13

Schuyler, James Dix, 1848-1912

Sketch. *por Eng N* 69:785-8 Ap 17 '13

Science

Continuity. *O. Lodge. Sci Am S* 76:181-3, 206-8 S 20-27 '13

Continuity versus atomism—limitations of the scope of physics and chemistry. *O. Lodge. Met & Chem Eng* 11:545-9 O '13

Industrial need of technically trained men. *A. B. Quincy. Sci Am* 109:42 J1 12 '13

Science and journalism. *Sci Am* 108:426 My 10 '13

Scientific management for scientists: "The Bridge"—the trust idea applied to intellectual production. *W. Ostwald. Sci Am* 108:5-6 Ja 4 '13

Sir Oliver Lodge's address. *Sci Am* 109:222 S 20 '13

Time and the sciences. *Sci Am* 108:446 My 17 '13

Value of science. *J. W. N. Sullivan. Sci Am S* 76:390-1 D 20 '13

See also Chemistry, Organic; Geology; Inventions; Metallography; Microscope and microscopy; Military art and science; Mineralogy; Naval art and science; Radioactivity; Scientific apparatus and instruments; Scientific research; Weights and measures

Scientific American medals

Fifth award of the Scientific American medal. *il Sci Am* 109:465 D 20 '13

Oxygen fed and driven device for artificial respiration. *il Sci Am* 108:117 F 1 '13

Scientific apparatus and instruments

Design and use of scientific instruments in aeronautics. *H. Darwin. Sci Am S* 76:66-7 Ag 2 '13

Scientific instruments used in aeronautics; devices for determining direction, speed and side-slip of aeroplanes. *H. Darwin. il Eng M* 45:878-80 S '13

See also Chemical apparatus; Drawing instruments; Electric apparatus and appliances; Instruments

Scientific literature

Indexes in scientific books. *Sci Am* 108:192 Mr 1 '13

Scientific management

About shoveling. *F. W. Taylor. Eng & Min J* 55:839-40 Ap 26 '13

Accounting as a basis for and a measure of efficiency in business. *C. H. Nau. J Account* 15:143-56 Mr '13

Aids to scientific management in the foundry. *W. M. Corse. Metal Ind n s* 11:158-9 Ap '13

Application of scientific principles to a manufacturing business. *S. C. Iman. Metal Ind n s* 11:258-9 Je '13

Building a cost system. *B. A. Franklin. Eng M* 46:356-64 D '13

Causes of failures in efficiency work. *F. W. Collins. Eng M* 45:862-6 S '13

Cost of high living. *Ind Eng* 13:218-9 My '13

Discussion of reports of sub-committee on administration on present state of industrial management. *Am Soc M E J* 35:447-518, 871-7 Mr. My '13

Efficiency and its ends. *Automobile* 28:549 F 27 '13

Efficiency and the worker. *H. R. Callaway. Eng M* 45:715-7 Ag '13

Efficiency engineering applied to mining. *G. A. Collins. Ind Eng* 13:166-8 Ap '13

Enlisting the foremen's co-operation. *R. T. Kent. Ind Eng* 13:285-8 J1 '13

Fatigue and efficiency. *Ind Eng* 13:435-6 O '13

Getting the most out of the shop. *S. Dean. Iron Age* 91:200-2 Ja 16 '13

Human element in industrial management. *Ry Age* 55:135 J1 25 '13

Human element in industry. *W. Talbot. Iron Age* 91:366-9, 418-20 F 6-13 '13

Human factors in engineering practice. *J. Calder. Mach* 19:597-9 Ap '13

Improving scientific management. *Ind Eng* 13:312-3 J1 '13

Industrial management. *J. M. Dodge. Ind Eng* 13:330-2 Ag '13

Installing Taylor system in Connecticut plant: Baird machine co. *Iron Tr R* 53:221-2 J1 31 '13

Investigating an industry. *W. Kent. il Ind Eng* 13:49-52, 105-8, 152-4, 208-11, 247-50, 293-6, 335-7, 371-3, 425-6 F-O '13

Management factors other than labor. *Iron Age* 91:256-7 Ja 23 '13

Micro-motion study by means of chronometer and moving picture machine. *il Ind Eng* 13:1-4 Ja '13

Micro-motion study in industry. *R. T. Kent. il Iron Age* 91:24-7 Ja 2 '13

Most important objections to scientific management. *F. E. Cardullo. Mach* 19:18-22 S '12

Motion study in the box shop. *R. T. Kent. plans Ind Eng* 13:325-9 Ag '13

New element in the art of management. *J. Calder. Stevens Ind* 30:203-14 J1 '13

Overvaluation of management science. *J. Calder. Iron Age* 91:605-6 Mr 6 '13

Political economy of production. *Il: Le Chatelier. Ind Eng* 13:197-200, 257-8, 260 My-Je '13

Possible economies in shop transportation. *R. T. Kent. diagrs Iron Age* 92:280-2 Ag 7 '13

Practical and scientific management: the Taylor system. *G. Schlesinger. Ind Eng* 13:376-80 S '13

Practical principles of rational management. *A. H. Church. Eng M* 41:487-94, 673-80, 894-903, 45:24-33, 166-73, 405-11 Ja-Je '13

Premium system at Watertown (Mass.) arsenal. *Iron Age* 91:173-5 Ja 9 '13

Prerequisites to scientific management. *H. P. Kendall; H. L. Gantt. Ind Eng* 13:201-2 My '13

Present state of the art. *Sci Am S* 76:286-8 N 1 '13

Principles of scientific management. *F. W. Taylor. Automobile* 28:609 Mr 6 '13

Problem of quality of workmanship. *B. A. Franklin. Eng M* 46:201-6 N '13

Production largely increased by a simple reorganization. *B. A. Franklin. il Eng M* 45:817-21 S '13

Psychology of management. *L. M. Gilbreth. Ind Eng* 13:18-23, 66-70, 113-6, 161-6, 213-7 Ja-MY '13

Questions on Taylor system discussed at Chicago conference of Western economic society. *Iron Age* 91:743 Mr 20 '13

Relation of detailed planning and the cost of production. *C. A. Harrington. Eng M* 45:353-8 Je '13

Relationship of scientific management to labor. *J. P. Frey. Iron Tr R* 52:917-8 Ap 17 '13

Science and the art of management. *F. G. Colburn. Iron Age* 91:248-9 Ja 23 '13

Science applied to industrial management: the Taylor system. *J. M. Dodge. Iron Age* 91:1544-6 Je 26 '13

Scientific management. *W. A. Weldin. Colliery* 33:553-4 My '13

Scientific management and the wage problem. *C. B. Thompson. Ind Eng* 13:430-3 O '13

Scientific management applied to coal mining. *H. M. Payne. Colliery* 33:701-2 J1 '13

Scientific management for mines. *Eng & Min J* 96:514 S 13 '13

Scientific management for scientists: "The Bridge"—the trust idea applied to intellectual production. *W. Ostwald. Sci Am* 108:5-6 Ja 4 '13

Scientific management in isolated-plant operation. *P. R. Moses. Eng M* 44:714-20 F '13

Scientific management in power-plant operation. *P. R. Moses. il Eng M* 44:884-93 Mr '13

Scientific management—Continued.

- Scientific management in Russia. *Ind Eng* 13:397 S '13
- Scope of scientific management. *Elec Ry J* 41:451 Mr 15 '13
- Shortcomings of small concerns. C. A. Harrington. *Iron Age* 92:78-9 J1 10 '13
- Success secured by study of workmen's tendencies. B. A. Franklin. *Eng M* 45:669-73 Ag '13
- Task setting for firemen and maintaining high efficiency in boiler plants. W. N. Polakov. *diags Am Soc M E J* 35:1729-69 D '13; Same cond., with discussion. *Power* 38:881-7 D 23 '13
- Taylor system from a German viewpoint. G. Schlesinger. *Iron Age* 92:82-3, 105-7 J1 10 '13
- Time study and task work explained. S. E. Thompson. *Iron Age* 91:1010-2 Ap 24 '13; Same. *Ind Eng* 13:347-50 Ag '13
- Tool room in scientific management. R. T. Kent. *Iron Age* 92:496-9 S 4 '13
- Utility of efficiency-records in the manufacture of iron. J. J. Porter. *Am Inst Min E Bul* 76:543-53 Ap '13
- Wage systems and their consequences. C. B. Thompson. *Iron Age* 91:1009 Ap 24 '13
- Why and how of making a time study. *Iron Age* 92:854-5 O 16 '13
- Why scientific management sometimes fails. G. P. Farrar. *Inland Ptr* 51:846-7 S '13
- See also* Bonus system; Cost accounting; Efficiency, Industrial; Efficiency society; Factory management; Foundry management; Machine shop management; Mine management; Motion study; Printing offices—Management; Railroads—Management; Routing systems; Stores systems

Scientific research

- Conservation and research: economies secured by scientific investigation. H. T. Kalmus. *Sci Am S* 75:114-5 F 22 '13
- Industrial fellowships. *Eng Rec* 67:511 My 10 '13
- Industrial fellowships: five years of an educational industrial experiment. R. K. Duncan. *J Fr Inst* 175:43-57 Ja '13
- Industrial research in America. A. D. Little. *Sci Am S* 76:282, 303 N 1-8 '13
- Interpreting restricted researches. *Eng Rec* 68:366-7 O 4 '13
- Our universities and industrial research. A. D. Little. *Sci Am S* 76:311 N 15 '13
- Possibilities of the home laboratory. *Sci Am* 108:350 Ap 19 '13
- Research work in public utility companies. *Eng Rec* 67:454-5 Ap 26 '13
- See also* Chemical laboratories; Electric laboratories; Hydraulic laboratories; Laboratories; Metallurgical laboratories; Physical laboratories

Scientific societies

- See also* American association for the advancement of science

Scoop car for removing slides. *Iron Age* 55:987-8 N 21 '13

Scoria process. *See* Briquets (iron)

Scotia, N. Y.

Sanitary affairs

Lessons from a never-used sewage-treatment plant. *Eng N* 70:423-4 Ag 28 '13

Scott, Robert Falcon, 1868-1912
Achievements and lessons of the Scott expedition. *Sci Am* 108:212 Mr 1 '13

Scott expedition and its tragic end. map por *il Sci Am* 108:175-8 F 22 '13

Scrap metal

Metal fakes. *Sci Am S* 75:295 My 10 '13

Reclaiming scrap on the Santa Fe. *il Ry Age* 55:260-7 Ag 15 '13

Rolling mills for scrap docks. G. G. Allen. *Ry Age* 54:1138-9 My 23 '13; Same. *Ry Age (Mech ed)* 87:305 Je '13

Scrap tool steel reclamation methods. J. J. Sheehan. plan *Iron Tr R* 53:253-4 Ag 7 '13; Same. *Ry Age (Mech ed)* 87:431-2 Ag '13

Why is scrap so low? *Iron Age* 92:1170-1 N 20 '13

Scrapers

Scrapers and hand scraping. *diags Mach* 20:338 D '13

Screening

Cleaning stone ballast by screening. W. I. Trench. *il Eng N* 70:453 S 4 '13

Conical screens. *il Eng & Min J* 96:645 O 4 '13

Improvements in sand and gravel washing. R. W. Dull. *il Concrete Cem* 2:129-31 Mr '13; Same. *Ry & Eng R* 53:202-3 Mr 8 '13

Standard screens for screen analyses. R. H. Richards. *Met & Chem Eng* 11:168 Mr '13

Use of screens to clean stone ballast. *il Eng Rec* 67:474-5 Ap 26 '13

See also Ore treatment

Screens for sewage. *See* Sewage disposal

Screw machine products. Cost estimating on. *il Iron Tr R* 52:909-15 Ap 17 '13

Screw machines

Acme multiple spindle automatic screw machine. D. T. Hamilton. *il diags Mach* 19:335-41 Ja '13

Automatic screw machine drive. *il diags Iron Age* 91:820-1 Ap 3 '13

Automatic screw machine equipment. D. T. Hamilton. *il diags Mach* 19:457-62, 535-9 F-Mr '13

Brown & Sharpe No. OOG automatic screw machine. *il Mach* 19:637-9 Ap '13

Cross-drilling and milling attachments. D. T. Hamilton. *il Mach* 19:619-22 Ap '13

Examples of screw machine set-ups. D. T. Hamilton. *il Mach* 20:129-34, 184-9 O-N '13

Locating the driving screw on horizontal boring mills. W. G. Dunkley. *diags Mach* 19:590-1 Ap '13

Making small parts on screw machines. *il diag Iron Age* 91:360-4 F 6 '13

Making the Foster safety set-screw. C. L. Lucas. *il Mach* 19:44-5 S '12

Measuring the flat on U. S. and Acme thread tools. G. H. Gardner. *il Mach* 19:843 J1 '13

Screw making machines. *il Iron Age* 92:74-5 J1 10 '13

Setting up and operating automatic screw machines. D. T. Hamilton. *il Mach* 19:677-81 My '13

Universal screw milling machine. *il Mach* 20:317-9 D '13

See also Machine tools; Screw threads

Screw propellers. *See* Propellers

Screw spikes. *See* Railroads—Track

Screw threads

Measuring screw threads by means of micrometers. *diags Mach* 19:384 Ja '13

Pitch diameters for metric system screw threads. *Mach* 19:441 F '13

Screw thread standards. F. P. Brown. *Mach* 19:372 Ja '13

Thread cutting tools. J. Waldman. *il Mach* 20:53-4 S '13

Screws

See Screw machines; Screw threads

Sculpture

Danish-American sculptor: work of Johannes S. Gelert. C. H. Dorr. *il Arch Rec* 33:332-8 Ap '13

Enlargement of sculpture: pointing machine. J. Hollingsworth. *il diag Sci Am* 109:426 D 6 '13

Sculptor of monumental architecture: work of Adolph A. Weinman. C. H. Dorr. *il Arch Rec* 33:518-32 Je '13

See also Bronzes; Monuments

Sea anemones

Remarkable giant sea-anemone. *il Sci Am* 109:231 S 20 '13

Sea power

See also Warships

Sea walls

Municipal quay wall, Oakland, Cal. T. E. Risley. map plan *Eng N* 69:304-6 F 13 '13

Sea wall is built of concrete units. *il Concrete Cem* 2:278 Je '13

Sea walls—*Continued.*

Tile protection for intertidal concrete in sea walls. *il* diag Eng N 70:1178-9 D 11 '13
 Typical Hamburg quaywall. *il* plans Eng N 70:938-9 N 6 '13

See also Docks; Harbors; Shore protection; Wharves

Sea water

Neglected source of power in nature: the temperature gradient of sea water. B. J. Campbell. *Sci Am S* 76:194 S 27 '13; Same. Eng N 70:250-1 Ag 7 '13

See also Concrete, Effect of sea water on; Salt

Seaboard air line railway

Report for year ended June 30, 1913. Ry Age 55:1102-4 D 5 '13
 Seaboard air line's increase of business. map Ry Age 55:1056-7 D 5 '13

Seamen's church institute, New York city

Structural steel in the Seamen's church institute. plan Eng Rec 67:162-3 F 8 '13

Searles lake, California

Searles lake potash deposit. C. E. Dolbear. *il* Eng & Min J 95:259-61 F 1 '13

Seashore

See Beaches; Sand dunes; Seaside resorts; Shore protection; Shore reclamation

Seaside resorts

How to build and improve seaside resorts. J. S. Brodie. Eng N 70:245 Ag 7 '13

Seattle, Washington

Municipal light & power plant. J. D. Ross. *il* Munic Eng 44:556-60 Je '13

Harbor

Harbor development in Seattle. W. L. Kidston. map plans Eng Rec 68:221-3 Ag 23 '13

Rapid transit

Grade reduction on street railways. C. H. Reeves. *il* Eng N 69:72-6 Ja 9 '13

Municipal railway line in Seattle. map Elec Ry J 41:753-4 Ap 26 '13

Water supply

Proposed reforestation of the Cedar river watershed, Seattle water-supply. *il* map Eng N 70:480-3 S 4 '13

Seaweed. *See* Kelp**Secondary batteries.** *See* Storage batteries**Secor engines.** *See* Gas and oil engines**Securities**

Blue sky legislation. Ry & Eng R 53:438 My 10 '13

Electric railway securities from the investor's standpoint. A. M. Harris. Elec Ry J 42: 861-3 O 17 '13

Investigations for financing purposes. G. D. Montgomery. J Account 16:417-23 D '13

Saturating the dollar with energy. Elec W 62:939-41 N 8 '13

See also Bonds

Seeds

Soil analysis and seed selection. L. V. Redman. *il* Sci Am 108:110 F 1 '13

Vitality of stored seeds. Sci Am S 75:240 Ap 12 '13

Seepage. *See* Water waste**Selling.** *See* Salesmen and salesmanship**Semi-steel**

Adaptability of semi-steel mixtures. R. H. Probert. *il* Foundry 41:285-6 J1 '13

British founder's viewpoint of semi-steel. M. Riddell. Foundry 41:349-52 S '13

Gray iron mixtures for motor car castings. H. B. Swan. *il* Foundry 41:475-8 N '13

Semiramis

Statue from the land of Semiramis. E. J. Banks. *il* Sci Am 109:85 Ag '13

Sensation. *See* Senses and sensation**Senses and sensation**

Sensibilities of the human organism. Sci Am S 76:239-40 O 11 '13

Separators. *See* Centrifugal machines**Separators, Steam.** *See* Steam separators**Septic tanks**

Concerning septic tank construction. Dom Eng 65:40 O 11 '13

How to dispose of discharge from septic tanks. Dom Eng 63:187-8 My 17 '13

Information about septic tanks. diags Dom Eng 62:101-2 Ja 25 '13

Question about septic tank for family of three. diags Dom Eng 63:30 Ap 12 '13

Recent design for a septic tank. diag Dom Eng 64:277-8 S 6 '13

Septic tanks and sewage disposal. *il* Dom Eng 65:330-4 D 13 '13

Septic tanks at Clarkdale, Arizona. diags Eng & Min J 96:581-5 S 27 '13

Whys and wherefores of the septic tank system. F. W. Tower. Dom Eng 65:270-1 N 29 '13

Sepulchers. *See* Tombs**Serpek process.** *See* Alumina**Serum therapy**

Bacteriology and your health: serums and vaccines in the diagnosis, treatment and prevention of disease. C. F. Bolduan. *il* Sci Am 108:540-1 Je 14 '13

Settling tanks. *See* Tanks**Sewage**

British standards for sewage effluents. W. L. Butcher. Eng N 69:423 F 27 '13

English test for dissolved oxygen. G. C. Whipple. Eng Rec 68:453-4 O 25 '13

Measuring the sewage of Sacramento. *il* plan Eng Rec 68:191-2 Ag 16 '13

Not sea water, but sewage. Sci Am 109:406 N 29 '13

Studies of fish life and water pollution: paper read before the International congress of applied chemistry, Sept., 1912. H. W. Clark and G. O. Adams. Eng N 69:300-2 F 13 '13

See also Filters and filtration; Sewage disposal; Sewage testing; Sewerage; Sludge treatment; Water pollution

Sewage disposal

Appendix to Royal commission on sewage disposal's eighth report. Eng Rec 68:315-6 S 20 '13

Application of the Moore filter to rapid filtration and purification of sewage. Met & Chem Eng 11:58-9 Ja '13

Artificial island proposed for New York sewage disposal. Eng Rec 67:475-6 Ap 26 '13

Atlantic, Ga. sewage disposal plant. *il* Munic Eng 45:520-2 D '13

Clarification of sewage in slate beds. Dr. Bach. diags Eng N 70:641-4 O 2 '13

Cleaning the sewage tank at Galva. Ill. L. Z. Jones. *il* Munic Eng 44:249-51 Mr '13

Columbus, O.—operation of sewage disposal plant. *il* Munic Eng 44:486-91 Je '13

Committee reports of Am. public health association on sewerage and sewage disposal. Eng N 70:759-61 O 16 '13

Description of the Chemproco sewage disposal system. J. M. Neil. *il* Met & Chem Eng 11:76-9 F '13

Design of Imhoff sewage plants. L. C. Frank. Eng Rec 68:452-3, 501-2, 519-21 O 25-N 8 '13

Disinfection of sewage and sewage filter effluent; results of experiments by Mass. state board of health. Eng Rec 67:14-6 Ja 4 '13

Disposal of sewage sludge. K. Imhoff. Dom Eng 65:308-9 D 6 '13

Distribution of sewage sludge in settling tanks. C. Hoopes. Eng Rec 68:429-30 O 18 '13

Fitchburg, Mass. sewage treatment works. diags Eng Rec 67:633-5 Je 7 '13

Fitchburg, Mass. sewage treatment works. F. A. Marston. map plans Eng N 69:1176-81 Je 5 '13

Hypochlorite disinfection of sewage at Providence. R. I. Eng N 70:1292 D 25 '13

Imhoff sewage tank and proposed sewage farm for Torrance, Cal. R. Bennett. plans Eng N 70:1132-3 D 4 '13

Imhoff tanks. *il* plan Munic Eng 44:349-404 My '13

Impressions of European sewage-treatment methods. Eng Rec 68:386 O 4 '13

Sewage disposal—*Continued.*

- Institutional disposal plant of infirmary and children's home of Greene county, Ohio. A. E. Kimberly. *il* Munic Eng 45:365-6 O '13
- Large-scale tests of plain sedimentation of sewage, London, England. Eng N 69:122 Ja 16 '13
- Lessons from a never-used sewage-treatment plant, Scotia, N. Y. Eng N 70:423-4 Ag 28, '13
- Mount Washington, Md.—new type of sewage sedimentation tank. H. T. Oliver. *il* plan Eng N 69:722-4 Ap 10 '13; Same cond. Eng M 45:429-31 Je '13
- Municipal plants for electrolytic sewage purification. C. L. Edholm. *il* Munic Eng 44:135-7 F '13
- Municipal sewage-treatment plants in New Jersey. Eng N 70:1232-3 D 18 '13
- New sewage treatment and disposal standards. Eng N 69:76-8 Ja 9 '13
- Plans for the disposal of New York's sewage. *il* map Sci Am 108:490 My 31 '13
- Principles of the Imhoff tank. H. N. Ogden. Eng M 44:958-60 Mr '13
- Proposed water-supply and sewage disposal legislation in Minnesota. Eng N 69:633-4 Mr 27 '13
- Residential sewage-disposal installations; individual sub-soil irrigation plants. W. H. Booker. plans Eng M 44:115-8 O '12
- Revolving drum screens for sewage. plans Eng Rec 67:470-1 Ap 26 '13
- River dilution for sewage effluent at Lethbridge, Ont. Eng Rec 67:56 Ja 11 '13
- Rolling mill cinder for sewage filters. H. L. Humphrey. Munic Eng 44:122-3 F '13
- Rules governing the submission of sewerage and water-supply plants to the New Jersey state board of health. Eng N 70:548-50 S 18 '13
- Separate and combined sewers in relation to sewage disposal. J. H. Gregory. Eng N 70:875-6 O 30 '13; Same cond. Eng Rec 68:442-3 O 18 '13
- Septic tanks and sewage disposal. *il* Dom Eng 65:330-4 D 13 '13
- Septic tanks at Clarkdale, Arizona. diags Eng & Min J 96:584-5 S 27 '13
- Sewage disinfection in Philadelphia. W. L. Stevenson. *il* plan Eng Rec 68:256-7 S 6 '13
- Sewage disposal and water supply at Duluth, Minn. J. Wilson. Munic Eng 44:347-8 Ap '13
- Sewage disposal at New Bedford, Mass. W. N. Charles. plans Eng N 70:216-9 J1 31 '13
- Sewage disposal investigations at Cleveland. R. W. Pratt. *il* plans Eng N 69:287-94 F 13 '13
- Sewage-disposal plant at the Great Lakes naval training station. Great Lakes, Ill. *il* plan Eng Rec 67:232-3 Mr 1 '13
- Sewage pollution of Lake Michigan from the Calumet district. Eng N 69:474 Mr 6 '13
- Sewage-pumping plant in Kansas City. O. L. Eltinge. plan Eng Rec 67:206-7 F 22 '13
- Sewage purification. F. H. Tibbitts. *il* diag Munic Eng 44:512-6 Je '13
- Sewage purification at Atlanta, Ga. *il* Munic Eng 45:224-30 S '13
- Sewage treatment at State hospital for the insane, Norristown, Pa. P. E. Mebus. plan Eng Rec 67:531-2 My 10 '13
- Sewage treatment plant for the Julietta insane hospital, Indiana. C. Grossmann. *il* plans Eng N 69:902-4 My 1 '13
- Sewage treatment plant for Waverly Hill anti-tuberculosis sanatorium. P. H. Norcross. *il* plans Eng N 70:558-60 S 18 '13
- Sewage-treatment studies at Akron, Ohio. *il* plans Eng Rec 67:387-90 Ap 5 '13
- Sewage-treatment works with motor-driven reversible distributor, Springfield, Mo. plan Eng N 70:1112-3 D 4 '13
- Shellfish conservation and sewage disposal. G. A. Johnson. Eng Rec 68:294 S 13 '13
- Springfield, Mo.—sewage disposal plant. *il* Munic Eng 45:459-63 N '13
- Studies at the Lawrence experiment station upon the disposal of sewage sludge in deep tanks. H. W. Clark and G. O. Adams. Eng N 70:13-5 J1 3 '13
- Studies of river bottoms at Philadelphia in relation to sewage disposal. Eng N 70:918-9 N 6 '13
- Suggestions for improvements on bacterial filtering beds for the purification of sewage. W. Thum. Munic Eng 45:539 D '13
- Temporary hypochlorite plant for treating the sewage of Norristown, Pa. S. C. Corson. plan Eng N 69:558 Mr 20 '13
- Travelers for sewage distribution at Springfield, Mo. A. Potter. *il* Eng Rec 68:440-1 O 18 '13
- Treatment of sewage discharged into tidal waters. Eng N 70:401 Ag 28 '13
- Uniformity in sewer plans: New Jersey state board of health's new regulations. Eng Rec 68:273-4 S 6 '13
- Why not sink Imhoff tanks as open caissons? E. B. Van de Greyn. diag Eng Rec 68:432 O 18 '13
- See also* Drainage; House; Plumbing; Refuse and refuse disposal; Septic tanks; Sewer cleaning; Sewerage; Sludge treatment; Water pollution; Water purification
- Sewage purification.** *See* Sewage disposal
- Sewage testing**
- Sewage testing station at Cleveland. Eng Rec 67:35 Ja 11 '13
- Sewage-treatment studies at Akron, Ohio. *il* plans Eng Rec 67:387-90 Ap 5 '13
- Sewer cleaning**
- Modern sewer cleaning in Milwaukee, Wis. *il* J. Kruse. *il* Munic Eng 44:273 Mr '13
- Sewer pipes**
- Concrete sewer-pipe tests in Kansas City, Mo. E. S. Wallace. *il* Eng N 69:568-9 Mr 20 '13
- Sewer pipe in large sizes. L. G. Blackmer. Munic Eng 44:461-2 My '13
- Specifications for drain tile and sewer pipe: committee report of Iowa state drainage assn. Eng Rec 67:235-6 Mr 1 '13
- Specifications for drain tile, for sewer tile and for pipe laying. A. Marston and A. O. Adams. diags Concrete Cem 3:201-4 N '13
- Strength of drain tile and sewer pipe. Eng Rec 68:46-7 J1 12 '13
- Testing drain tile and sewer pipe. M. Schuyler. Eng Rec 68:695-7 D 20 '13
- Vitrified sewer pipe tests. Munic Eng 45:488 N '13
- Watertight joints for pipe sewers. P. F. Miller. diag Munic Eng 44:348-51 Ap '13
- See also* Sewer cleaning
- Sewerage**
- Cincinnati sewerage investigations and surveys. J. E. Root. Eng Rec 67:347-8 Mr 29 '13
- Collapse of sewer in St. Louis. *il* Eng Rec 68:417 O 11 '13
- Committee reports of Am. public health association on sewerage and sewage disposal. Eng N 70:759-60 O 16 '13
- Concrete sewer construction in Louisville. J. H. Kimball. *il* Munic Eng 44:20-3 Ja '13
- Construction of brick storm sewer at Cedar Rapids. *il* Eng Rec 68:304-5 S 13 '13
- Construction of tile pipe sewers in Chicago. H. E. Hudson. *il* Munic Eng 45:20-4 J1 '13
- Covering of Jones' Falls, Baltimore, Md. *il* map Eng N 70:2-8 J1 3 '13
- Difficult sewer construction at West Liberty, Iowa. C. P. Chase. *il* Eng Rec 67:303-4 Mr 15 '13
- Disastrous sewer explosion in Pittsburgh. *il* Eng N 70:1157-9 D 4 '13
- Effects of flood on pavements and sewers. G. C. Cummin. *il* Eng Rec 68:357-8 S 27 '13
- Great Vancouver joint sewerage scheme: organizing and financing project for draining 55,600 acres, with data on rainfall and float tests. map Eng Rec 68:472-4 O 25 '13
- Hydraulic comparison of equivalent egg-shaped and circular sewers. R. S. Beard and O. L. Eltinge. Eng N 70:252 Ag 7 '13
- Instructions for subsurface survey of Cincinnati. Eng N 70:1080-3 N 27 '13
- Launching a submerged sewer outfall at Ocean Grove, N. J. M. R. Pugh. *il* Eng Rec 68:279 S 6 '13

Sewerage—Continued.

- Making assessments to meet the cost of constructing sewers and drains. *Munic Eng* 45:536-7 D '13
- New Jersey requirements for sewerage and water supply plans. *Munic Eng* 45:355-8 O '13
- Outfall sewer of corrugated iron pipe and measurements of its internal friction, El Paso, Tex. *Eng N* 69:774-5 Ap 17 '13
- Passaic valley sewer. II map *Sci Am* 109:320-1 O 25 '13
- Practical hints on sewer construction. W. W. Bridgen. *Eng Rec* 67:239-40 Mr 1 '13
- Railway sewers and drains. *Ry & Eng R* 53:1196-9 D 27 '13
- Rehabilitation of Hoboken, N. J. sewerage system. II plans *Eng Rec* 67:221-2 F 22 '13
- Rules governing the submission of sewerage and water-supply plans to the New Jersey state board of health. *Eng N* 70:548-50 S 18 '13
- Separate and combined sewers in relation to sewage disposal. J. H. Gregory. *Eng N* 70:875-6 O 30 '13; Same cond. *Eng Rec* 68:442-3 O 18 '13
- Sewage ejectors in Grand Central terminal. J. Graham. plans *Dom Eng* 63:180-1 My 17 '13
- Sewer building hints. *Eng Rec* 67:227 Mr 1 '13
- Sewer construction in quicksand. *Eng N* 70:1027-8 N 20 '13
- Sewer siphons under New York subway. T. L. Wilson. II plan *Munic Eng* 44:392-8 My '13
- Sewers and drains. *Ry Age* 55:786 O 24 '13
- Sewers and plumbing for the Panama show. *Dom Eng* 65:171 N 8 '13
- Sinking a sewage pump well in silt in El Paso, Texas. II *Eng Rec* 67:664 Je 14 '13
- Specifications for drain tile and sewer pipe; committee report of Iowa state drainage assn. *Eng Rec* 67:235-6 Mr 1 '13
- Steel forms for concrete construction; uses of forms on sewers, aqueducts and tunnels. W. M. Venable. II *Concrete Cem* 2:11-4 Ja '13
- Subaqueous sewer construction. Brooklyn, N. Y. II plans *Eng N* 70:1064-70 N 27 '13
- Suggested simplification for the value of C in Kutter's formula and a sewer discharge diagram. A. Boyd. *Eng N* 70:316 Ag 14 '13
- Tile pipe sewers near Chicago. H. E. Hudson. II *Munic Eng* 45:285-6 S '13
- Uniformity in sewer plans: New Jersey state board of health's new regulations. *Eng Rec* 68:273-4 S 6 '13
- Water-proofing sewers. W. W. Dixon. *Munic Eng* 44:276 Mr '13
- See also* Drainage; House; Plumbing; Sewage; Sewage disposal; Sewer cleaning; Sewer pipes

Sewers. See Sewerage

Sewickley, Pennsylvania**Bridges**

- Sewickley cantilever bridge. II plans *Eng N* 69:393-9 F 27 '13

Sewing machines

- History of the sewing machine. *Mach* 19:689 My '13
- Old sewing machine patents. *Sci Am* 108:419 My 3 '13

Sgraffito. See Frescoes

Shades and shadows

- Shading in mechanical drawing. T. W. Johnson. diags *Am Mach* 38:865-7 My 22 '13; Same. *Am Soc M E J* 35:593-600 Ap '13; Discussion. 35:1261-8 Ag '13

Shaft signals. See Mine signals

Shaft sinking

- Cementation process for sinking shafts. S. F. Walker. *Colliery* 34:234-5 N '13
- Concrete drop shaft. diags *Eng & Min J* 95:1194-5 Je 14 '13
- Construction of no. 3 shaft. Negaunee mine. S. R. Elliott. diags *Eng & Min J* 95:265-71 F 1 '13

- Cost of shaft sinking in Minnesota iron mining. *Eng & Min J* 96:739-40 O 18 '13
- Cost of sinking Beakpan mine shafts. *Eng & Min J* 96:980-1 N 22 '13
- Deep shaft development at Placerville, California. L. H. Eddy. *Eng & Min J* 96:1067-8 D 6 '13
- Derrick for sinking 557 feet. diag *Eng & Min J* 96:117-8 Ji 19 '13
- Shaft sinking. S. Haines. *Colliery* 33:571 My '13
- Shaft sinking at the Indiana mine. C. T. Rice. diag *Eng & Min J* 95:509-11 Mr 8 '13
- Shaft sinking cementation process. G. S. Rice. diag *Ry & Eng R* 53:827 Ag 30 '13
- Shaft-sinking methods at Butte. H. S. Munroe. *Eng & Min J* 96:389-90 Ag 30 '13
- Shaft-sinking methods of Batte. N. B. Braly. II *Am Inst Min E Bul* 80:1881-1906 Ag '13
- Shaft sinking with core drill. plan *Eng & Min J* 95:1049-50 My 21 '13
- Shafts sunk with plugger drills. *Eng & Min J* 95:1097-8 My 31 '13
- Sinking a circular shaft. E. M. Heriot. diags *Eng & Min J* 95:331-5, 363-7 F 8-15 '13
- Sinking a concrete shaft lining through quicksand; Adams shaft near Deerwood, Minn. plan *Eng Rec* 67:383-4 Ap 5 '13
- Sinking against water on the Rand, Transvaal. diag *Eng & Min J* 95:1201-2 Je 14 '13
- Sinking the Hancock no. 2 shaft. Lake Superior copper country. C. T. Rice. plan *Eng & Min J* 95:787-91 Ap 19 '13
- Sinking with delay action fuses. W. V. DeCamp. diag *Eng & Min J* 96:65-6 Ji 12 '13
- Unwatering two notable excavations: Catskill aqueduct and East river tunnels. II *Colliery* 33:197-9 Ap '13
- Wall-plate splices. II *Eng & Min J* 96:787 O 25 '13

See also Boring; Mine shafts; Mining engineering

Shafting

- Carbonization of shafting. *Mach* 20:275-7 D '13
- Intermediate supports for long shafts. W. G. Dunkley. diags *Mach* 19:363-4 Ja '13
- Power consumption in bearings. *Eng & Min J* 96:405-6 Ag 30 '13

See also Belting; Power transmission; Pulleys

Shafts

- Determining shaft diameters. W. G. Dunkley. *Mach* 19:948-9 Ag '13

See also Crank shafts; Hoisting machinery; Mine shafts; Power transmission; Shaft sinking; Shafting

Shaler, Nathaniel Southgate, 1841-1906

- Considerations on the nature of intellectual property. *Sci Am S* 75:46-7 Ja 18 '13

Shapers

- Gould & Eberhardt 24-inch shaper. II *Mach* 19:65 S '12
- Heavy duty back geared shaper. II diags *Ry Age (Mech ed)* 87:338 Je '13
- Shaping machine efficiency test. A. L. Jenkins. II *Iron Age* 92:122-3 Ji 17 '13
- Stockbridge twenty-inch shaper. II diag *Iron Age* 91:1290 My 29 '13; *Mach* 19:820-1 Je '13
- 10 1/2-in. Pratt & Whitney vertical shaping machine. II *Iron Age* 92:1212-3 N 27 '13

See also Machine tools

Sharpeners. See Pencil sharpeners

Sharpening

- Fuller attachment for machine sharpener. plan *Eng & Min J* 95:997 My 17 '13
- Joplin steel-sharpening kinks. C. T. Rice. II plan *Eng & Min J* 95:802-3 Ap 19 '13
- Sharpening edge tools. W. D. Graves. II *Sci Am* 108:143 F 8 '13

Shaw, Howard

- Recent work of Howard Shaw. H. D. Croly; C. M. Price. II *Arch Rec* 33:284-331 Ap '13

Shears (machine tools)

- Hydraulic plate shears. *Sci Am S* 76:295 N 8 '13

- Shears (machine tools)**—*Continued.*
 Sheet steel work in the shop of the Galigher machinery co., Salt Lake City. F. A. Stanley. *il Am Mach* 38:151-2 Ja 23 '13
 Special automatic hot-bed shear. diags *Iron Age* 91:148 Ja 9 '13
- Sheet bar situation.** *Iron Tr R* 52:215 Ja 16 '13
- Sheet metal**
 Essentials in the making of the finer steel sheets. J. G. Homan. *Met & Chem Eng* 11: 253-4 My '13
 New safety device for spinning sheet metal. *il Sci Am* 109:208 S 13 '13
- Sheet-metal work**
 Bending appliances for sheet-steel panels. diags *Mach* 19:469 F '13
 Drawing a motor-cycle muffler base. *il Mach* 19:539-40 Mr '13
 Economical management of sheet metal shop. C. A. Harrington. *Am Mach* 38:739-40 My 1 '13
 Making the Philips pressed steel pulley. C. L. Lucas. *il Mach* 20:175-80 N '13
 Prevention of wrinkles in drawn work. *Mach* 19:49 S '12
 Sheet-metal work turned out by the Acklin stamping co. D. T. Hamilton. *il Mach* 20: 182-3 N '13
 Sheet steel pipe plant at Richmond, Cal. *il plan Iron Age* 91:471-3 F 20 '13
 Sheet steel work in the shop of the Galigher machinery co., Salt Lake City. F. A. Stanley. *il Am Mach* 38:151-4 Ja 23 '13
 Tools for multiple plunger presses. C. Doerschner. *plans Mach* 19:449-52 F '13
See also Boilers; Brass; Chimneys; Steel; Copper; Dies; Metal spinning; Metal work; Plate metal work; Punching machinery
- Sheet-piling.** *See* Piles and pile driving
- Sheffield, University of**
 Engineering workshops of the University of Sheffield. G. W. Burley. *il Mach* 19:699-701 My '13
- Sheffield scientific school.** *See* Yale university. Sheffield scientific school
- Shellfish**
 Shellfish conservation and sewage disposal. G. A. Johnson. *Eng Rec* 68:294 S 13 '13
- Sherardizing.** *See* Galvanizing
- Sherman anti-trust law**
 Putting teeth in the anti-trust law. *Eng Rec* 67:226 Mr 1 '13
 Report recommending amendment of the Sherman law. *Ry & Eng R* 53:180-1 Mr 1 '13
 Scope of the Sherman law explained. *Iron Age* 91:950-1 Ap 17 '13
 Settlement of American telephone and telegraph suit. *Elec W* 62:1303-4 D 27 '13
 Sherman law and agreements between engineers not to enter competitions. D. B. Lutten. *Eng Rec* 68:335-6 S 20 '13
- Ship furniture**
 Steel furniture, bulkheads, doors and trim for battleships and merchant vessels. *il Int Marine Eng* 18:365-6 Ag '13
- Ship propulsion**
 Device to facilitate the coupling of cruising turbines. H. E. Yarrow. diags *Int Marine Eng* 18:397-8 S '13
 Diesel-electric-driven ship Tyne-mount. J. R. Wilson. *il Power* 38:641-3 N 4 '13
 Electric propelling machinery for Collier Jupiter. W. L. R. Emmet. *il plans Int Marine Eng* 18:323-7 Ag '13
 Electric propulsion for ships. E. Berg. *plan Eng M* 44:269-72 N '12
 Electrical propulsion of ships. W. L. R. Emmet. *il diags J Fr Inst* 176:43-60 Ji '13
 Electrically-driven cargo boat Tyne-mount. C. Van Langendonck. *il Int Marine Eng* 18: 520-2 D '13
 Electrically-driven vessel Tyne-mount. F. C. Coleman. *il Sci Am* 109:357 N 8 '13
 Electrically-operated ship Tyne-mount. *il Elec W* 62:947-9 N 8 '13
 Engineering progress in the U. S. navy; abstracts. C. W. Dyson. *Eng N* 69:101-3 Ja 16 '13; *Power* 37:10-2, 106-9 Ja 7, 28 '13
- Experimental tugboats; the Fulton and the Froude. *il Sci Am S* 75:12-3 Ja 4 '13
 Five-masted auxiliary sailing ship France. F. C. Coleman. *il Int Marine Eng* 18:506-10 D '13
 Hydraulic transmission on ships; the Föttinger transmitter. *il Eng M* 46:108-12 O '13
 Mechanical gearing for propulsion of ships. C. A. Parsons. *il diags Int Marine Eng* 18:233-7 Je '13
 Power equipment of the Aquitania. *il Power* 37:663-5 My 13 '13
 Problem of high speed in ships. *diag Sci Am* 109:154 D 13 '13
 Tests on a 10,000 horse-power Föttinger transformer; hydraulic gear for marine turbines. A. Gradenwitz. *il Sci Am* 108:536 Je 14 '13
 Turbine reduction gear in relation to battleship fighting power. *il diag Sci Am* 109:317-8 O 25 '13
See also Marine engineering; Marine engines; Motor ships; Propellers; Ship resistance; Steam turbines; Marine
- Ship resistance**
 Wind pressure on ocean liners. *Sci Am* 109: 158 Ag 30 '13
See also Ship propulsion
- Ship subsidies**
 Subsidies aid Swedish shipping. *Int Marine Eng* 18:118-9 Mr '13
 To upbuild the merchant marine. C. Depesee. *Sci Am* 108:223 Mr 8 '13
- Shipbuilding**
 Armstrong works; pioneer in development of modern ships, guns, and armor. *il Sci Am* 109:453-4 D 13 '13
 Bethlehem co. purchases shipbuilding plant, Quincy, Mass. *il Iron Tr R* 52:998 My 1 '13
 Diagram of formula for vertical C. B. W. S. Owen. *Int Marine Eng* 18:262 Je '13
 Emergency repairs to a destroyer. J. F. Hellweg. *Sci Am* 109:180 S 6 '13
 English ship draftsmen and technical graduates. L. B. Chapman. *Int Marine Eng* 18: 220-2 My '13
 Free import of material for shipbuilding. *Mach* 19:580 Ap '13
 Great Lakes shipbuilding industry. *Iron Age* 91:364 Ja 2 '13
 Imperator; details of the equipment. *il Eng M* 44:107-9 O '12
 Lloyd's summary of world's shipbuilding. *Int Marine Eng* 18:115-8 Mr '13
 New shipbuilding berth and 250-ton wharf crane at the Blohm & Voss shipyard. *il Int Marine Eng* 18:438-9 O '13
 On safety of life at sea. P. A. Hillhouse. *Int Marine Eng* 18:395-6 S '13
 Progress of shipbuilding in 1912. *Iron Age* 91:252-3 Ja 23 '13
 Sample of old-time engineering skill; the ferryboat Long Beach. C. S. Lynch. *il plan Int Marine Eng* 18:98-100 Mr '13
 Ship construction treated from a structural engineering standpoint. J. E. Steele. *Int Marine Eng* 18:385-9 S '13
 Shipbuilding contracts. L. Peskett. *Int Marine Eng* 18:440-3 O '13
 Shipbuilding in Japan. *Int Marine Eng* 18: 392 S '13
 World's naval and merchant shipbuilding. *Sci Am S* 75:190-1 Mr 22 '13
 World's progress in shipbuilding in 1912. *Int Marine Eng* 18:76-7 F '13
See also Ferries; Freight ships; Marine engines; Motor barges; Motor boats; Motor ships; Naval architecture; Propellers; Safety at sea; Sailing vessels; Ships—Stability; Ships, Iron and steel; Steamboats; Submarine boats; Tonnage; Towboats; Warships; Yachts
- Shipment of goods**
 Conservation and shipping containers. B. W. Dunn. *Ry & Eng R* 53:794-6 Ag 23 '13
 Damage to bulk cement and sacked cement by wetting in transit. J. H. Libberton. *Eng N* 70:251 Ag 7 '13

Shipment of goods—Continued.

- Difficult steel casting hard to ship. *il* Iron Age 92:776-7 O 9 '13
 Need of better boxes for freight. *Ry* Age 55:23-4 J1 4 '13
 Shipping outfit for iced-water samples. *il* Eng N 70:819-20 O 23 '13
 Shipping power-plant equipment. *Power* 38:64 J1 8 '13

See also Freight; Perishable; Ore transportation; Poultry; Transportation of

Shipping

- Annual report of Lloyd's register of shipping for the year 1912-1913. *Int Marine Eng* 18:510-1 D '13
 Century's decline in American shipping. *Sci Am* 108:26 Ja 11 '13
 Export shipping tour of New York city. *il* Am Ind 14:36-7 D '13
 First Dutch shipping exhibition. *F. M. Van Brakel. Int Marine Eng* 18:383 S '13
 To upbuild the merchant marine. *C. Depessee. Sci Am* 108:223 Mr 8 '13
 Toll exemption for coastwise shipping; address regarding the Panama Canal act. *E. R. Johnson. Eng Rec* 67:62-3 Ja 18 '13

See also Carriers; Coal handling; Freight; Perishable; Freight handling; Freight terminals; Ports; Salvage; Ship subsidies; Shipbuilding; Shipment of goods; Ships; Steamboats; Transportation

Ships

- Preservation of metals for marine work. *F. Lyon. Int Marine Eng* 18:151-4 Ap '13;
 Same cond. *Eng M* 45:440-2 Je '13
 Thousand-foot ship. *Sci Am* 108:330 Ap 12 '13

See also Electricity on ships; Ferryboats; Freight ships; Launching; Lightships; Motor ships; Propellers; Safety at sea; Sailing vessels; Ship propulsion; Ship resistance; Shipbuilding; Shipping; Steamboats; Submarine boats; Tank ships; Towboats; Warships; Yachts

Stability

- Engineering applications of the gyroscope. *E. A. Sperry. il J Fr Inst* 175:447-63 My '13
 Gyroscopic mechanism for recording roll and pitch of vessels at sea. *il Sci Am* 109:149 Ag 23 '13
 Gyroscopic stabilizer for ships. *E. A. Sperry. il Sci Am* S 75:203-6 Mr 29 '13
 Stability of ships—notes for commanders. *G. Nicol. plans Int Marine Eng* 18:24-6 Ja '13

Ships, Freight. *See* Freight ships; Tank ships**Ships, Iron and steel**

- Chinese training cruiser Ying Swei. *F. C. Coleman. il Int Marine Eng* 18:231-2 Je '13
 Some cases of fatigue in the steel material of steamers. *S. J. P. Thearle. diags Int Marine Eng* 18:349-50 Ag '13
 Steel furniture, bulkheads, doors and trim for battleships and merchant vessels. *il Int Marine Eng* 18:365-6 Ag '13
 Steel harbor lighter Willard U. Taylor. *il plan Int Marine Eng* 18:162 Ap '13

Ships, Launching of. *See* Launching**Ships, Motor.** *See* Motor ships**Ships, Speed of**

- Below decks on the official trial trip of a cruiser. *Int Marine Eng* 18:219-20 My '13
 Problem of high speed in ships. *diag Sci Am* 109:454 D 13 '13

Ships, Training. *See* Training ships**Shipwrecks**

- Injury to the hull of the U. S. S. Arkansas by grounding. *il Eng N* 70:439-41 S 4 '13
 Many vessels wrecked in storm on Great lakes. *Iron Tr R* 53:894-5 N 13 '13
 November storm on the Great lakes. *Int Marine Eng* 18:533-4 D '13
 Worst storm in history of Great lakes navigation. *Iron Tr R* 53:935-6 N 20 '13

See also Collisions at sea; Life-saving; Lifeboats; Salvage

Shock absorbers

- Akum shock absorber. *diag Automobile* 29:299 Ag 14 '13
 Defects in springs. *G. H. Bailliee. Automobile* 28:1124-6 My 29 '13
 Scientific experiments with shock absorbers. *diags Automobile* 29:1155-6 D 18 '13
 Shock absorbers for automobiles. *il Sci Am* 109:192 S 6 '13
 Shock absorbers show improved details. *il Automobile* 28:371-3 Ja 30 '13
 Shock preventer is real requirement. *Automobile* 29:599 S 18 '13

Shock-absorbing hub. *il Sci Am* 108:318 Ap 5 '13**Shock absorption**

- Experiments on shock absorption of power vehicles. *E. Bobeth. Am Soc M E J* 35:1437-9 S '13

Shoddy

- Pulled wool or shoddy. *II. Priestman. Sci Am* S 75:223-4 Ap 5 '13

Shoe plates

- Making ball players' shoe plates. *A. F. Horton. il diags Mach* 19:780-2 Je '13

Shoe polishes and dressings

- Modern shoe polishes and dressings. *J. T. Donald. Sci Am* S 75:407 Je 28 '13

Shoes

See also Leather

Shooting

- Fire control platform of a United States battleship. *J. B. Walker. Sci Am* 109:363 N 8 '13
 Remington negative angle sighting system. *il Mach* 19:603-6 Ap '13

See also Guns; Rifle practice; Rifles; Target practice

Shop management. *See* Factory management; Machine shop management; Scientific management; Workshop management**Shop practice.** *See* Machine shop practice**Shop schools.** *See* Trade schools**Shop transportation.** *See* Conveying machinery; Mechanical handling**Shore protection**

- Foreshore protection by reinforced-concrete groins. *plans Eng N* 69:668-70 Ap 3 '13
 New system of concrete coast protection. *diags Concrete Cem* 3:186 O '13
See also Canals; Flood control; Harbors; Rivers—Regulation; Sea walls

Shore reclamation

- Prize design for Coney Island beach reclamation. *plan Eng N* 70:304-5 Ag 14 '13
 Problem in beach reclamation at Coney Island and a prize for its solution. *plan Eng N* 69:354 F 20 '13

Shoring and underpinning

- Deep excavations and underpinning in dry sand: steel frame office building for the Union central life insurance company, Cincinnati. *il Eng Rec* 68:487 N 1 '13
 Safeguarding displaced viaduct piers at Cleveland. *il diags Eng Rec* 68:661-3 D 13 '13
 Shoring a theater wall with cantilever needlebeams. *plan Eng Rec* 67:576 My 24 '13
 Underpinning a nine-story column. *W. J. Willis. il Eng Rec* 67:575 My 24 '13
 Underpinning a stone retaining wall of Trinity churchyard for Lexington avenue subway. *Eng Rec* 68:362-3 S 27 '13
 Underpinning and retaining grillage foundations of Evening post building for Lexington ave. subway. *plan Eng Rec* 68:176-7 Ag 16 '13
 Underpinning the old Mills building, Broad and Nassau streets, New York city. *diag Eng N* 70:257 Ag 7 '13

See also Foundations; Scaffolding

Shorthand machines

- Machine that writes shorthand. *il Sci Am* 108:13 Ja 4 '13

Shoveling

- About shoveling. *F. W. Taylor. Eng & Min J* 95:839-40 Ap 26 '13

Shovels, Electric. See Electric shovels

Shovels, Steam. See Steam shovels

Show rooms

Do attractive showrooms justify investment?
Il Dom Eng 62:226-9 F 22 '13

Show-windows

Value of proper show-window lighting. Il Elec W 62:698-9 O 1 '13

Showcases

Showcase lighting. Il Elec W 61:111 Ja 11 '13

Siberia

Trip to the Siberian placers. A. P. Rogers. Il Eng & Min J 95:307-11 F 8 '13

Sidewalks

Control of sidewalk construction and maintenance. Eng N 70:778-9 O 16 '13

Steel vs. wooden sidewalk forms. C. Allison. Munic Eng 45:179-80 Ag '13

See also Pavements

Sidewalks, Concrete

Cinder foundation in sidewalk construction. Concrete Cem 3:173-5, 224 O-N '13

Concrete sidewalk construction. Munic Eng 44:571-2 Je '13

Cost of concrete sidewalk. Concrete Cem 2:290; 3:68-9 Je, Ag '13

Cracks in concrete sidewalk. Concrete Cem 2:180-1 Ap '13

Cracks in concrete sidewalk. M. S. Hotchkiss. diag Concrete Cem 3:30 Jl '13

Factory-made sidewalk slabs. M. G. Warner. Concrete Cem 2:247 My '13

See also Sidewalks, Elevated

Sidewalks, Elevated

Elevated sidewalk. H. H. Suplee. Sci Am 109:67 Jl 26 '13

Reinforced-concrete elevated sidewalks. East St. Louis, Ill. E. R. Rodenberg. Il Eng N 69:62 Ja 9 '13

Sight

Curiosities of binocular vision: stereoscopic and other effects. F. Campbell. Il Sci Am S 76:122-3 Ag 23 '13

Theory of vision. M. H. E. Tscherning. Sci Am S 75:339 My 31 '13

Visual acuity in white light. M. Luckiesh. Elec W 62:1160 D 6 '13

See also Eye; Goggles; Optical illusions; Spectacles

Sights for firearms. See Firearms—Sights

Signal bridges. See Railroads—Signal bridges

Signals

See also Electric railroads—Signals; Fire alarms; Railroads—Signals

Signals, Electric. See Electric signals

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Signals, Submarine. See Submarine signals

Signals, Time. See Time signals

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Curved electric sign on a suburban real-estate office. Il Elec W 62:751 O 11 '13

Spectacular electric sign at Springfield, Ill. Il Elec W 61:832 Ap 19 '13

Toledo's electric slogan signs. Il Elec W 62:1273 D 20 '13

Two-motor flasher control of a large sign in Indianapolis. Il Elec W 61:732-3 Ap 5 '13

Silicon

Influence of silicon on corrosion of cast iron. J. N. Friend and C. W. Marshall. Foundry 41:307-8 Ag '13

Influence of silicon on open-hearth ingots. Il Iron Tr R 52:894-5 Ap 3 '13

Pure silicon castings. Foundry 41:112 Mr '13; Same. Iron Tr R 52:581-2 Mr 6 '13

Silicon castings for the chemical industries. Met & Chem Eng 11:102-3 F '13

Titanium and silicon in rail steel. Eng Rec 67:390-1 Ap 5 '13

Silk

See also Textile industry and fabrics

Silk, Artificial

How to tell artificial silks. Sci Am S 75:389 Je 21 '13

Silk cotton

Silk-cottons: economic products from tropical trees. Il Sci Am S 75:76-7 F 1 '13

Silos, Concrete

Computing the cost of a concrete silo. Il plan Concrete Cem 2:100-1 F '13

Concrete in silo construction. Il plan Concrete Cem 2:201-2 Ap '13

Monolithic concrete silo. Concrete Cem 3:50 Jl '13

Permanence of concrete silos. Concrete Cem 3:117-8, 175-7, 273 S-O, D '13

Pit silos in the Southwest. Il Concrete Cem 3:206-7 N '13

Silver

Cyaniding Zambona low-grade silver ore, Sonora, Mexico. H. A. and R. T. Sill. plan Eng & Min J 95:745-7 Ap 12 '13

Gold and silver in Idaho in 1912. R. N. Bell. Eng & Min J 95:123-4 Ja 11 '13

Gold and silver production in 1912. Eng & Min J 96:604 S 27 '13

Gold and silver production in 1912. F. Hobart. Eng & Min J 95:52-4 Ja 11 '13

Lead-silver mines of Gilmore, Lemhi county, Idaho. R. Nichols. Am Inst Min E Bul 83:2625-7 N '13

Recent progress of Cobalt silver mines. R. E. Hore. Il Eng & Min J 95:737-8 Ap 12 '13

Recovery of silver from a silver plating solution. Foundry 41:242 Je '13

Secondary silver enrichment. Eng & Min J 95:752 Ap 12 '13

Silver: its extraction, structure, and novelty. J. Scott. Il Metal Ind n s 11:243-4 Je '13

Silver prices. Eng & Min J 96:417 Ag 30 '13

See also Assaying; Cyanide process; Silver metallurgy; Silver-plating

Silver assaying

Assay of gold and silver by the iron-nail method. E. J. Hall and C. W. Drury. Am Inst Min E Bul 78:1059-66 Je '13; Same cond. Eng & Min J 96:1125-6 D 13 '13; Discussion. Am Inst Min E Bul 83:2683-92 N '13

Buying and selling silver and gold: the scientific side of the assay office at New York. H. J. Slaker. Il Sci Am 109:144-5 Ag 23 '13

Gay-Lussac method of silver determination. F. P. Dewey. Am Inst Min E Bul 76:587-602 Ap '13

Silver metallurgy

Cyaniding silver at Nevada Hills mill, Fairview. H. A. Megraw. Il Eng & Min J 95:645-8 Mr 29 '13

Cyaniding Zambona low-grade silver ore, Sonora, Mexico. H. A. and R. T. Sill. plan Eng & Min J 95:745-7 Ap 12 '13

Metallurgy of gold and silver in 1912. Met & Chem Eng 11:4-5 Ja '13

Precipitation of gold and silver by metallic minerals. Eng & Min J 95:759-60 Ap 12 '13

Rapid silver estimation in mill solutions. G. H. Clevenger. plan Eng & Min J 95:892-3 My 3 '13

Role of certain metallic minerals in precipitating silver and gold. C. Palmer and E. S. Bastin. Am Inst Min E Bul 77:843-57 My '13

Silver cyanidation at Tonopah, Nev. A. H. Jones. H. A. Megraw. Eng & Min J 95:767-8 Ap 12 '13

Silver cyanidation at Tonopah, Nevada. H. A. Megraw. Il Eng & Min J 95:413-7, 455-9, 503-6 F 22-Mr 8 '13

See also Cyanide process

Silver nitrate

Second series of quantitative experiments and preparation and testing of silver nitrate. E. B. Rosa and others. U S Bur Stand Bul 9:524-51 D 15 '13

Silver-plating

Method of silver plating glass tubes and their use. G. E. Moreland. Il Metal Ind n s 11:31-2 Ja '13

Practical experience in silver plating. Metal Ind n s 11:336 Ag '13

Silver plating—*Continued.*

Practical methods employed for silver deposit on glass and china. A. A. Le Fort. *il Metal Ind n s* 11:69-70 F '13

Silver solution. S. Shoeld and G. B. Hoga-boom. *Metal Ind n s* 11:29-30, 85-6, 301-3 Ja F '13

Silvering of mirrors. E. Blassett, jr. *Metal Ind n s* 11:523-4 D '13

Spotting-out problem and silver-plating. C. F. Burgess and L. T. Richardson. *Foundry* 41:502-3, 508 N '13; *Same*. *Metal Ind n s* 11:477-9, 508-10 N-D '13

Similitude, Laws of, and their application in aeroplane design. L. Bairstow. *il Sci Am S* 76:109-10 Ag 16 '13

Simplified spelling. See Spelling reform

Singing of telegraph wires. *Sci Am* 108:337 Ap 12 '13

Sinking funds

Sinking funds. W. H. Forse, jr. *Elec Ry J* 42:863 O 17 '13

Sinks

Kitchen, pantry, slop and stable sinks. F. W. Tower. *Dom Eng* 65:109 O 25 '13

Sloux remedy co. vs. Cope

Appeal important to all manufacturers. *Am Ind* 13:16-7 F '13

Siphons

Antelope valley siphon. Los Angeles aqueduct. W. W. Hurlbut. *il plan Eng Rec* 68: 60-2 JI 19 '13

Designing steel pipe for minimum weight of metal consistent with safety: jawbone inverted siphon of the Los Angeles aqueduct. E. R. Bowen. *il Eng Rec* 68:682-4 D 20 '13

Failure of a concrete-lined siphon in massive granite. Los Angeles aqueduct. *il plan Eng Rec* 67:640-1 Je 7 '13

Failure of pressure siphon in rock; Los Angeles aqueduct. *Eng Rec* 67:623 Je 7 '13

Failure of the Sand Cañon inclined pressure tunnel. Los Angeles, Cal. B. A. Heinly. *Eng N* 69:1147 My 29 '13

Failure of the Sand Cañon pressure-tunnel siphon of the Los Angeles aqueduct. B. A. Heinly. *il plan Eng N* 69:1198-1200 Je 5 '13

Narrows siphon of the Catskill aqueduct. A. D. Flinn. *diags Eng Rec* 68:317-8 S 20 '13

Sewer siphons under New York subway. T. L. Wilson. *il plan Munic Eng* 44:392-8 My '13

Siphon spillways to control water surface of reservoirs. W. R. Davis. *il diags Concrete Cem* 3:42-3 JI '13

Spillways of the siphonic type. A. G. Hillberg. *plans Eng Rec* 67:488-90 My 3 '13

Skating rinks

Hot blast heating for an ice skating rink; Winnipeg horse show amphitheatre. plans *Heat & Ven* 10:11-7 Ap '13

Skin

Skin defects in invisible light. G. Michaud and F. Tristan. *il Sci Am* 109:489 D 27 '13

Skyrocket flying machine. *il Sci Am* 108:289 Mr 29 '13

Skyscrapers. See High buildings

Slag

Blast furnace slag analyses for 24 hours. F. L. Grammer. *Iron Age* 91:716 Mr 29 '13; *Same*. *Am Inst Min E Bul* 75:475-7 Mr '13; *Same*. *Iron Tr R* 52:971 Ap 24 '13

Constitution of copper slags. *Eng & Min J* 95:460-3 Mr 1 '13

Function of slag in electric steel-refining. R. Amberg. *Am Inst Min E Bul* 74:257-68 F '13

Magnetite in mattes and slags. E. W. Walter. *Eng & Min J* 95:213-4 Ja 25 '13

Manufacture of paving brick from furnace slag. *Eng Rec* 68:241 Ag 30 '13

Scoria briquetting process: the use of slag as a binder in preparing minerals for smelting. E. Stütz. *il Eng M* 45:888-90 S '13

Scoria process for the manufacture of fine-ore briquettes, blue-dust briquettes, and slag brick for building purposes. E. Stütz. *diags Am Inst Min E Bul* 74:257-65 JI '13; *Discussion*. 81:2899-2903 D '13

Study of slag enclosures in steel. *Iron Tr R* 52:418-9 F '13 '13

Utilization of blast furnace slag for brick. *Iron Age* 91:813 Ap 3 '13

See also Blast furnaces

Slate beds

Clarification of sewage in slate beds. Dr. Bach. *diags Eng N* 70:611-1 O 2 '13

Slater lixiviation process

Slater lixiviation process. *Eng & Min J* 96: 595 S 27 '13

Slater lixiviation process. H. B. Slater. *Eng & Min J* 96:1133-4 D 13 '13

Slaughtering and slaughter houses

Electrical refrigeration for the butcher. R. L. Lloyd. *il Elec R & W Elec'n* 62:83-8 Ja 11 '13

Municipal slaughter house at Grand Forks, N. D. H. G. Lykken. *Munic Eng* 45:332-3 O '13

See also Packing industry

Sledges, Motor. See Motor sleighs

Sleds, Motor. See Motor sleighs

Sleeping cars

New end construction for Pullman cars. *il diag Ry Age* 55:231-2 Ag 8 '13

Sanitary sleeping car. *Sci Am S* 75:414 Je 28 '13

Sanitary sleeping car. F. W. Fitzpatrick. *Sci Am S* 75:367 Je 7 '13

Sleeping cars for Oregon electric railway. *il Elec Ry J* 11:119 Ja 18 '13

Ventilation of steel sleeping cars. *il Heat & Ven* 10:28-31 My '13

Ventilation of steel sleeping cars. T. R. Crowder. *Ry Age* 54:285-7 F 14 '13

Sleeping sickness

Sleeping death; the scourge of Africa. D. A. Willey. *il Sci Am S* 76:104-6 Ag 16 '13

Sleet

Effect of sleet storm on distributing lines at Rochester, N. Y. *il Elec W* 61:412 F 22 '13

Effects of recent sleet storm on telephone wires near Chicago. *il Elec W* 61:605-6 Mr 22 '13

Heavy sleet on telephone wires at Glace Bay. *il Elec W* 61:1127 My 31 '13

Sleighs, Motor. See Motor sleighs

Slide rule

Moisture slide rule. C. G. Barth, jr. *il Eng & Min J* 95:1149 Je 7 '13

Slide-rule for spring calculations. J. Y. Dahlstrand. *il Mach* 19:856-8 JI '13

Slide valves

Slide valve successfully used on superheater locomotives. *Ry Age* 54:1063 My 16 '13

Slime. See Cyanide process; Ore treatment

Slings and hitches

Slings and hitches for handling machinery. J. Riddell. *il Eng N* 69:768-72 Ap 17 '13;

Same. *Ind Eng* 13:155-60 Ap '13; *Same cond*. *Power* 37:561-4 Ap 22 '13; *Same cond*. *Eng & Min J* 95:1092-1 My 31 '13

Slot-machines

Electrically operated slot-machine camera. *il Elec W* 62:102 JI 12 '13

Gasoline slot machine. *il Sci Am* 109:300 O 18 '13

Slotting machines

French slotting machine. *il plan Iron Tr R* 52:802-3 Ap 3 '13

High-speed slotting machine. *il Mach* 19:51 S '12

Slotting machines and tools used in the pond shops. A. Spangenberg. *il diag Mach* 19:950-2 Ag '13

Sludge treatment

Design of Imhoff sewage plants. L. C. Frank. *Eng Rec* 68:519-21 N 8 '13

Experiments on sludge digestion at Lawrence, Mass., and London. *Eng. R. Hering*. *Eng N* 70:317-8 Ag 14 '13

Sludge treatment—Continued.

- Fresh and decomposed sludge. Eng Rec 68: 418-20 O 11 '13
 Fresh sludge and decomposed sludge: comparative analyses and discussion of sludge-utilization possibilities. H. Bach and L. C. Frank. Eng Rec 68:331-3 S 20 '13
See also Sewage disposal

Sluicing. *See* Gold mines and mining**Smelter fumes**

- Control of noxious fumes: Heslewood method involving new principles in copper smelting. A. H. Martin. Eng M 45:901-2 S '13
 Determination of gases in smelter flues. E. M. Dunn. Am Inst Min E Bul 80:2051-92 Ag '13
 Mammoth system of fume control. A. H. Martin. il Mines & Min 33:323-4 Ja '13
 Notes on the bag-house in connection with lead blast-furnaces and leady copper-matte converters. A. Eilers. diags Am Inst Min E Bul 73:85-112 Ja '13
 What has been the fume damage in California? L. H. Eddy. map Eng & Min J 96:153; 5 Jl 26 '13

Smelter trust

- Investigating the smelter trust. Met & Chem Eng 11:425-6 Ag '13

Smelting

- Concentration and reverberatory smelting of a second-class copper ore. F. W. Traphagen. Met & Chem Eng 11:497-9 S '13
 Copper smeltery of the U. S. metals refining co., Chrome, N. J. R; H. Vail. il plan Eng & Min J 95:1031-7 My 24 '13
 Copper smelting at Bogoslowk, Russia. R. Davey. Eng & Min J 95:605-6 Mr 22 '13
 Copper smelting at Chrome, N. Y. J; W. James. Eng & Min J 95:1207 Je 14 '13
 Copper smelting operations of the Santa Fé gold and copper mining co., San Pedro, New Mex. C. T. Emrich. il Met & Chem Eng 11:327-9 Je '13
 Douglas agglomerating cone. diags Eng & Min J 96:627-8 O 4 '13
 Experiment in smelting titaniferous magnetite. L. O. Kellogg. Eng & Min J 96:604 S 27 '13
 Five-ton smelting furnace that smelts. R. P. Jarvis. Eng & Min J 96:415 Ag 30 '13
 Historical note on copper smelting. Eng & Min J 96:359-61 Ag 23 '13
 Historical note on smelting lead and silver. Eng & Min J 96:169-70 Jl 26 '13
 Historical note on tin smelting. Eng & Min J 96:495-6 S 13 '13
 Historical note on zinc smelting. Eng & Min J 96:741-2 O 18 '13
 Improvements in smelting at the Consolidated company's works. Trail, B. C. E. Jacobs. Met & Chem Eng 11:562-3 O '13
 Increasing the efficiency of MacDougall roasters at the Great Falls smelter of the Anaconda copper mining co. F. R. Corwin and S. S. Rodgers. diags Am Inst Min E Bul 79:1389-1428 Jl '13
 Kedabeg copper-smelting works, Transcaucasia. diags Eng & Min J 96:15-9 Jl 5 '13
 Lead, zinc and copper smelting in America. F. Heberlein. il Eng & Min J 96:871-5, 909-12 N 8-15 '13
 Mason valley smeltery, Thompson, Nev. Eng & Min J 95:1107-8 My 31 '13
 Matte smelting at Mackay, Idaho. F. N. Flynn. Eng & Min J 95:747-8 Ap 12 '13
 New construction at copper smelteries. Eng & Min J 95:335-6 F 8 '13
 New smeltery of United Verde copper company, Clarkdale, Ariz. R; H. Vail. il plan diags Eng & Min J 96:287-92, 341-6 Ag 16-23 '13
 Ore bedding by the Tennessee copper co.: making acid from smelting-works gases. H. F. Wierum. Eng & Min J 96:435-7 S 6 '13
 Plant of Michigan smelting & refining co., Detroit, Mich. il Metal Ind n s 11:1-6 Ja '13
 Present status of the thlogen process. S. W. Young. Eng & Min J 95:369-70 F 15 '13

Roasting at Steptoe valley smelting works, Nevada. S. S. Sorensen. il Eng & Min J 95:1273-4 Je 28 '13

Semi-pyritic smelting in Mexico. R. S. Pratt. Eng & Min J 95:1191-2 Je 14 '13

Smelting in bond. Eng & Min J 96:516 S 13 '13

Smelting of titaniferous iron ores. J. T. Singewald, jr. U S Bur Mines Bul 64:10-7 '13

Tooele (Utah) plant of the International smelting & refining co. H. N. Thomson and L. T. Sicka. il Am Inst Min E Bul 79:1209-24 Jl '13

See also Blast furnaces; Electrometallurgy; Furnaces; Furnaces, Reverberatory; Metallurgy; Ore treatment; Smelter fumes; also American smelting and refining company

Smelting, Electric

- Art of electric zinc smelting. Met & Chem Eng 11:582-3 O '13
 Byproducts in electric zinc smelting. W. M. Johnson. il Eng & Min J 96:1157-9 D 20 '13
 Electric iron smelting in Norway. Eng & Min J 95:996 My 17 '13
 Electric smelting of chromium, tungsten, molybdenum and vanadium ores. Met & Chem Eng 11:585-6 O '13
 Electric smelting of iron ore in California. il Iron Age :2:124-6 Jl 17 '13
 Electric zinc furnace. Met & Chem Eng 11: 583-5 O '13
 Electric zinc smelting. F. Louvrier. il Met & Chem Eng 11:603-5 N '13
 Possible applications of the electric furnace to western metallurgy. Met & Chem Eng 11:577-81 O '13
 Progress of electric smelting at Heroult, Cal. J; Crawford. il Met & Chem Eng 11: 383-8 Jl '13
 Scandinavian electric zinc smelting. Eng & Min J 96:1030 N 29 '13
 Smelting iron electrically with coke as fuel. H. J. Hanson. il Iron Tr R 53:1003-7 D 4 '13
 Smelting of copper ores in the electric furnace. D. A. Lyon and R. M. Keeney. diags Am Inst Min E Bul 80:2117-49 Ag '13; Same cond. Met & Chem Eng 11:522-7 S '13
 Smelting tin ore. Met & Chem Eng 11:593-4 O '13
 Zinc smelting in the electric furnace. W. M. Johnson. diags Eng & Min J 96:965-7 N 22 '13
See also Electric furnaces; Electrometallurgy

Smoke

- Corona method of removing smoke and dust from gases. W. W. Strong. il Sci Am S 76:156 S 6 '13
 Cost of the smoke nuisance to Pittsburgh. J; J. O'Conner. Power 38:670-1 N 11 '13
 Methods for investigating and recording atmospheric impurities, including the soot and dust suspended in the atmosphere. J; B. C. Kershaw. diags Met & Chem Eng 11:339-42 Je '13
 Moor-burning in Germany. Sci Am 108:429 My 10 '13
 Smoke an industrial nuisance. R. C. Benner. il Sci Am S 75:168-70 Mr 15 '13
 Smoke costs Pittsburgh \$10,000,000 annually. Eng Rec 68:540-1 N 15 '13
 Smoke evil. R. C. Benner. Eng M 45:427-9 Je '13
 Why smoke is an industrial nuisance. R. C. Benner. il Iron Age 91:135-8 Ja 9 '13
See also Flues; Fuel; Fumigation; Mechanical draft; Smoke prevention

Smoke charts

- New smoke chart. il Ind Eng 13:181-2 Ap '13

Smoke prevention

- Abatement of locomotive smoke. D. F. Crawford. Ry & Eng F 53:1022-3 N 1 '13; Same. Sci Am S 76:354-5 D 6 '13; Same cond. Ry Age 55:762-5 O 24 '13; Excerpts. Power 38:662 N 4 '13

Smoke prevention — Continued.

- Advantages of the brick arch. L. G. Parish. Ry Age (Mech ed) 87:473-6 S '13;
Same cond. Ry Age 55:335-6 Ag 22 '13
- Beam automatic smoke preventer. il diags
Power 38:414 S 16 '13
- Chicago & North Western demonstrates
smoke abatement device. Ry Age 54:957 Ap
25 '13
- Chicago successful in smoke abatement. il
Munic Eng 44:257-8 Mr '13
- Demonstration of smokeless operation. Chi-
cago & Northwestern Ry. Ry & Eng R 53:
384 Ap 26 '13
- Elimination of black smoke from locomotives.
M. Whelan. Ry Age 55:336-7 Ag 22 '13;
Ry Age (Mech ed) 87:472-3 S '13
- Elimination of smoke. Ry & Eng R 53:513
My 31 '13
- Elimination of smoke. D. F. Crawford. Sci
Am S 75:384 Je 14 '13
- Elimination of the black smoke evil on loco-
motives. Ry & Eng R 53:786-7 Ag 16 '13
- Fighting the smoke nuisance in Des Moines.
H. McNutt. Munic Eng 45:133-5 Ag '13
- Furnace details for smokeless combustion.
Ind Eng 13:309 Jl '13
- Furnaces for smoke suppression. diags Ind
Eng 13:259-60 Je '13
- German soot and cinder arrester. O. E. Traut-
mann. plan Power 37:774-5 Je 3 '13
- Improved smoke prevention device. il diag
Iron Age 92:226-7 Jl 31 '13
- Less smoke in boiler operation. Iron Age
92:751-2 O 2 '13
- New York smoke ordinance unconstitutional.
Power 38:174 Jl 29 '13
- Precipitation of smoke and suspended dust
by electrostatic methods. H. N. Holmes.
plan Elec W 61:401-2 F 22 '13
- Railroad smoke inspectors' association of
Chicago. Ry Age (Mech ed) 87:478 S '13
- Regulating smoke on river steamboats with-
in city limits. Eng Rec 67:233-4 Mr 1 '13
- Smoke. Ind Eng 13:264-5 Je '13
- Smoke abatement. Iron Tr R 52:367-8 F 6
'13
- Smoke abatement and ordinances; compar-
ison of present conditions in principal cities
of U. S. Eng Rec 67:151-2 F 8 '13
- Smoke abatement ordinances. J. W. Bryce.
Munic Eng 45:450-1 N '13
- Smoke nuisance in Salt Lake City. Utah. J.
C. Coogan. il Munic Eng 44:365-7 Ap '13
- Smoke prevention. A. C. Wilson. Power 37:
289-90 Mr 4 '13
- Smoke prevention and the mechanical stoker.
D. F. Crawford. Ry Age 55:25 Jl 4 '13
- Smoke-washers for roundhouses. plans Eng
N 69:1004-5 My 15 '13
- Smoke washing plant at Englewood. il Ry
Age 55:1022 N 28 '13
- Smokeless boilers in Salt Lake City. Dom Eng
63:86-7 Ap 26 '13
- Smokeless furnaces now a certainty. J. M.
Searle. Iron Tr R 53:1030-1 D 4 '13
- Steam jets for smokeless combustion on lo-
comotives. Eng N 69:1300-1 Je 19 '13

See also Chimneys; Combustion; Firing;
Locomotives—Smoke problem; Mechanical
draft; Smelter fumes; Stokers, Mechanical

Smokeless powder

- Modified form of stability test for smoke-
less powder and similar materials. H. C.
P. Weber. U S Bur Stand Bul 9:119-29
Mr 15 '13
- Progress in military explosives. W. J. Haw-
kins. il Eng N 69:16-20 Ja 2 '13

Smokestacks. See Chimneys**Smoking**

- Disintoxication of tobacco. Sci Am 108:347
Ap 12 '13
- Hearing before Public service commission
on smoking in cars. Elec Ry J 41:1111-2 Je
21 '13
- Rules against smoking on street cars. Eng
N 69:582-3 Mr 20 '13

Snow plows

- Pilot snow plow. E. R. Lewis. Ry Age 54:
255-6 F 7 '13

Rotary snow plow. Canadian Pacific Ry. H.
H. Vaughn. il Ry & Eng R 53:58-9 Ja 18
'13

Rotary snow plows; development from earli-
est type to latest Canadian Pacific design.
il Eng Rec 67:38-9 Ja 11 '13

Snow slides

Snow slide protection at Marble, Colorado.
H. V. Knouse. il Eng Rec 67:73 Ja 18 '13

Snow surveys

Snow surveys for predicting stream flows. J.
C. Alter. il Eng N 69:1110-3 My 29 '13

Value of snow surveys in irrigation: methods
for predicting run-off from snow-clad
mountain areas. J. C. Alter. il Eng M 45:
737-40 Ag '13

Social work

See also Industrial betterment

Societies, Engineering. *See* Engineering socie-
ties

Societies, International. *See* International socie-
ties

Societies, Publications of

Improving the character of technical papers.
Eng Rec 67:249-50 Mr 1 '13

Society for electrical development

- Advantages obtained from membership in So-
ciety for electrical development. H: L. Do-
herty. Elec W 62:365 Ag 23 '13
- Annual meeting called in New York, May
13, 1913. Elec W 61:1022-3 My 17 '13
- Annual meeting, 1913, and list of officers.
Elec W 61:128 Ja 18 '13
- Developing the latent electrical market. Elec
W 62:1251-4 D 20 '13
- Engineers close session. J. E. Schipper. il
Automobile 28:1187-81 Je 12 '13
- Inaugural conference. New York, March 4
& 5, 1913. Elec W 61:493-508 Mr 8 '13;
Elec Ry J 41:428-9 Mr 8 '13
- J. Robert Crouse on the Society for electri-
cal development. Elec W 62:169-70 Jl 26 '13
- Meeting, 1913; list of officers. Elec Ry J 41:
119 Ja 18 '13
- Possibilities. F. Koester. Elec W 61:683 Mr
29 '13
- Society for electrical development. Sci Am
108:304 Ap 5 '13

Society for promotion of engineering education

- 21st annual meeting. Minneapolis, June, 1913.
Elec W 62:12-5 Jl 5 '13
- 21st annual meeting. Minneapolis, June, 1913.
Eng Rec 68:sup 45 Jl 12 '13

Society for testing materials. *See* American
society for testing materials

Society of automobile engineers

- Annual winter meeting. New York, 1913. Au-
tomobile 28:282-95 Ja 23 '13
- S. A. E. and I. A. E. off on lake trip. pors
Automobile 28:1150-5, 1180-1 Je 5 '13
- S. A. E. papers illustrate progress. Auto-
mobile 28:346-9 Ja 30 '13
- Standards committee report. Automobile 28:
252-3 Ja 16 '13

**Society of naval architects and marine en-
gineers**

21st general meeting. New York, Dec
11 and 12. Eng N 70:1255 D 18 '13

Society of railway financial officers

7th annual meeting. Highland Park, Ill., Sept.,
1913. Ry Age 55:605-8 O 3 '13

Soda-ash

- Soda-ash for boiler waters. C. H. Bromley.
Power 38:412-3 S 16 '13
- Soda-ash for boiler waters. J. C. Hawkins.
diag Power 38:795 D 2 '13

Soda industry

Ernest Solvay. soda king. Sci Am S 76:364
D 6 '13

Sodium

Evidence that sodium belongs to a radioactive
series of elements. F. C. Brown. Sci Am S
75:317 My 17 '13

Sodium carbonate. *See* Soda industry

Sodium nitrate

Determination of nitrates by ferrous sulphate.
Eng & Min J 96:504 S 13 '13

Sodium oxalate

Standardization of potassium permanganate solution by sodium oxalate. R. S. McBride. U S Bur Stand Bul 89611-42 Mr 1 '13

Sodium perborate

Peroxides and per-salts. A. S. Neumark. Sci Am S 75:222-3 Ap 5 '13

Sodium peroxide

Peroxides and per-salts. A. S. Neumark. il Sci Am S 75:200-1 Mr 29 '13

Softening of water. See Water purification**Soil bacteriology**

Micro-organisms of the soil. G. T. Moore. Sci Am S 75:74-5 F 1 '13

Soil inoculation

Soil sterilization. E. J. Russell. il Sci Am S 75:180-1 Mr 22 '13

Soils

Acid amides in the soil. S. L. Jodidi. J Fr Inst 175:245-58 Mr '13

Chemistry of humus; relation to the soil and to the plant. S. L. Jodidi. bibliog J Fr Inst 176:565-73 N '13

Chemistry of the soil nitrogen. S. L. Jodidi. bibliog J Fr Inst 175:482-95 My '13

Formation of leafmold; production of humus. F. V. Colville. Sci Am S 75:386-7 Je 21 '13

Micro-organisms of the soil. G. T. Moore. Sci Am S 75:74-5 F 1 '13

New way of studying soils. Sci Am 108:196 Mr 1 '13

Soil analysis and seed selection. L. V. Redman. il Sci Am 108:110 F 1 '13

See also Agriculture; Drainage; Fertilizers and manures; Irrigation; Soil bacteriology

Soils, Foundation. See Foundation soils**Solar power**

Shuman-Haines steam engine and solar power. il Sci Am S 76:29-32 Jl 12 '13

Solar power plants

Egyptian solar power plant. il Sci Am 108:88 Ja 25 '13

Tapping the sun's radiant energy directly; Frank Shuman's plant at Cairo, Egypt. il Sci Am 109:334 N 1 '13

Solder and soldering

Art of soldering on white metal. M. McKune. Metal Ind n s 11:426-7 O '13

Chemistry of a soldering flux. Sci Am 108:278 Mr 22 '13

Fluxes for soft solder. W. Arthur. Foundry 41:47 N '13; Same. Mach 20:282 D '13; Same. Metal Ind n s 11:506-7 D '13; Same cond. Ind Eng 13:532 D '13

Joining of metals. A. E. Tucker. Metal Ind n s 11:128-9 Mr '13

Repairing radiator tube leak. diag Automobile 28:989-90 My 8 '13

Soft solder. R. Grimshaw. Metal Ind n s 11:305 Jl '13

See also Plumbing; Welding

Sole-plates and shoes for electrical machine foundations. F. B. Duggan. il Elec W 61:579-80 Mr 15 '13**Solution (chemistry)**

Evidence bearing on the solvate theory of solution. H. C. Jones. J Fr Inst 176:479-564, 677-710; bibliog. 704-10 N-D '13

Precipitation temperatures. J. Gross. Eng & Min J 95:911-2 My 3 '13

See also Colloids

Solvay, Ernest

Ernest Solvay, soda king. por Sci Am S 76:364 D 6 '13

Soot

Influence of soot on boiler economy. H. D. Fisher. Power 38:816-7 D 9 '13

See also Boiler cleaning

Sorting belts. See Ore treatment**Soulé, Frank, 1845-1913**

Sketch. por Eng N 69:788-9 Ap 17 '13

Sound

Photographing sound: a fine demonstration of wave motion. A. L. Foley and W. H. Souder. il Sci Am S 75:108-11 F 15 '13

Seeing sound: snap shots of waves traveling at 750 miles per hour. il Sci Am 108:152 F 15 '13

See also Acoustics; Architectural; Phonograph; Radiation

South America

Construction conditions in South America. W. E. Wagner. il Concrete Cem 3:122-4 S '13

Southern Pacific railroad

Condition of Southern Pacific as gathered from its annual report. map Ry Age 54:378-80 F 28 '13

Electrification of Southern Pacific mountain division. Ry & Eng R 53:939-40 O 1 '13

Southern Pacific-Union Pacific dissolution. See Union Pacific railroad

Study of electrification on the Southern Pacific. Elec Ry J 42:421 S 13 '13

28th annual report. Ry Age 54:413-8 F 28 '13

Southern railway

19th annual report for year ended June 30, 1913. Ry Age 55:729-32 O 17 '13

Revenues and expenses. map Ry Age 55:692-4 O 17 '13

Southern supply and machinery dealers association

Indianapolis meeting. April, 1913. Iron Age 91:350-1, 371-3 Ap 17 '13

Southwestern electrical & gas association

9th annual convention, Galveston, May, 1913; abstracts of papers. Elec Ry J 41:963-5, 1019-21 My 31, Je 7 '13

9th annual convention, Galveston, May, 1913; abstracts of papers. Elec W 61:1131-2, 1210-1 My 31-Je 7 '13

Souvenir booklets

Souvenir booklet. Inland Ptr 51:288 My '13

Spanish moss. See Vegetable hair**Spanners**

Use and abuse of spanners. Automobile 29:426 S 4 '13

Spark gap

Discussion on group IV papers (Miscellaneous subjects relating to rating). (See Proceedings for February, 1913) Am Inst E E Pro 32:2074-2121 N '13

Sphere spark gap. S. W. Farnsworth and C. L. Fortescue. diags Am Inst E E Pro 32:300-5 F '13

Spark plugs

New spark plugs. il Automobile 28:360-3 Ja 30 '13

Sparking. See Electric sparks**Sparks**

Grinding wheel sparks: how they indicate the character of steel. R. G. Williams. il Sci Am S 75:292-3 My 10 '13

Spaulding dam

Construction of the Spaulding dam on the Yuba river. il map Eng Rec 68:150-2 Ag 9 '13

Spaulding dam. H. C. Vensano. il map plan Eng N 70:1163-6 D 11 '13

Specific gravity

Moisture slide rule. C. G. Barth, jr. il Eng & Min J 95:1149 Je 7 '13

Specifications

American soc. for testing materials, 16th annual meeting Atlantic City, June, 1913. Elec Ry J 42:32 Jl 5 '13

American soc. for testing materials, 16th annual meeting; committee reports and specifications. Eng N 70:37-40 Jl 3 '13

Application of specifications. R. W. Hunt. Eng N 70:20-1 Jl 3 '13

Effect of specifications and testing of material on the storekeeper's stock. Ry Age (Mech ed) 87:299-300 Je '13; Same cond. Ry Age 54:1137-8 My 23 '13

16th annual meeting of Am. soc. for testing materials; presidential address by Robert W. Hunt on the application of specifications. Iron Age 91:1569-71 Je 26 '13

Specifications must be used with judgment. R. W. Hunt. Iron Tr R 52:1434-5 Je 26 '13

See also Boilers—Specifications; Steel—Specifications

Spectacles

Eye-preserving glass for spectacles. W. Crookes. *Sci Am S* 76:414 D 27 '13

See also Goggles

Specter of Brocken. *See* Brocken, Specter of

Spectra

Selective radiation from various substances. W. W. Coblentz. *U S Bur Stand Bul* 9:81-117 Mr 15 '13

See also Light; Radioactivity; Radiometers; Spectrum analysis

Absorption spectra

Evidence bearing on the solvate theory of solution. H. C. Jones. *diags J Fr Inst* 176:507-64 N '13

Spectroscope in organic chemistry. J. J. Bobbie. *il Sci Am S* 76:6-7 Jl 5 '13

Spectrophotometers

Calibration of a Koenig-Martens polarization spectrophotometer. G. A. Shook. *Met & Chem Eng* 11:633-7 N '13

Quantitative spectrum analysis: spectrophotometers. G. A. Shook. *Met & Chem Eng* 11:552-5 O '13

Spectrum analysis

Quantitative spectrum analysis. G. A. Shook. *Met & Chem Eng* 11:494-7, 552-5, 633-7 S-N '13

Quantitative spectrum analysis: colorimeters. G. A. Shook. *diags Met & Chem Eng* 11:494-7 S '13

See also Spectra

Speech

Voices of the deaf; graphic records of speech. E. W. Scripture. *il Sci Am S* 76:60-1 Jl 26 '13

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Speed indicators. *See* Tachometers

Speed of ships. *See* Ships, Speed of

Speed regulation

Figuring out gears for speed-boxes. J. J. Densman. *Mach* 19:588-9 Ap '13

See also Electric motors—Speed control; Speed variation; Speeders

Speed variation

Hydraulic speed-change gear or variable speed power transmission. *il Eng N* 69:1141-3 My 29 '13

Variable speed mechanism for milling machine table. *il diags Mach* 19:412 F '13

Speeders

Graham drill speeders. *il diags Mach* 19:811-3 Je '13

Speedometers

Magnetic speedometers are not affected by exterior fields. *Automobile* 28:599 Mr 6 '13

Methods used in manufacturing the Jones speedometer. E. K. Hammond. *il Mach* 29:43-7 S '13

1913 speedometers. *il Automobile* 28:358-9 Ja 30 '13

Speedways

Banked turn for French road race. *Automobile* 28:762-3 Ap 3 '13

Brooklands (England) is world's fastest speedway. *plan Automobile* 28:1100 My 29 '13

Indianapolis, a city where pulling together has brought results. L. V. Spencer. *il Automobile* 28:1089-92 My 29 '13

Indianapolis speedway as 500-mile course. *plan Automobile* 28:1101 My 29 '13

Speiss

Speiss as a precious metal collector. *Eng & Min J* 95:167-8 Ja 18 '13

Spelling

Variations in spelling. F. H. Teall. *Inland Ptr* 51:397 Je '13

See also Compound words; Spelling reform

Spelling, Simplified. *See* Spelling reform

Spelling reform

Progress of simplified spelling. B. Matthews. *Inland Ptr* 51:71 Ap '13

Simplified spelling—a last word. F. H. Teall. *Inland Ptr* 50:557-8 Ja '13

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Sphere gap voltmeter. *See* Voltmeters

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Engineers' study course: mensuration. *il Power* 37:392-4, 430-2 Mr 18-25 '13

Spices

Antiseptic properties of spices. *Sci Am S* 75:119 F 22 '13

Spillways

Siphon spillways to control water surface of reservoirs. W. R. Davis. *il diags Concrete Cem* 3:42-3 Jl '13

Spillways of the siphonic type. A. G. Hillberg. *plans Eng Rec* 67:488-90 My 3 '13

See also Dams; Irrigation; Reservoirs

Spiral gearing. *See* Gearing, Spiral

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Spitzbergen

Michigan mining interests in Spitzbergen. *Eng & Min J* 96:1008 N 29 '13

Splashguards. *See* Wheel guards

Splicing. *See* Knots and splices

Spodumene

Lithia deposits of the Black Hills. V. Ziegler. *il Eng & Min J* 96:1053-6 D 6 '13

Spokane, Washington**Bridges**

Concrete viaduct. *il Concrete Cem* 3:199-200 N '13

Latah creek bridge. J. F. Greene. *il plan Eng Rec* 67:312-4 Mr 22 '13; Same cond. *il plan Eng N* 69:614-7 Mr 27 '13

Railroads

New O.-W. R. & N. terminal at Spokane. *il plan Ry Age* 55:817-9 O 31 '13

Terminal work of the C. M. & St. P. Ry. in Spokane. *il plans Ry & Eng R* 53:297-300, 339-40 Mr 29, Ap 12 '13

Streets

Street cleaning costs at Spokane, Wash., in 1912. S. A. Levington. *Eng N* 69:404-5 F 27 '13

Spokane convention of engineering societies

First convention, 1913. *Elec W* 61:440-1 Mr 1 '13

Spontaneous combustion

Deterioration and spontaneous combustion of gas coal. P. Barker. *Am Soc M E J* 35:279-81 F '13

Spontaneous heating of stored coal, its cause and prevention. *Sci Am S* 75:10-1 Ja 4 '13

Spontaneous ignition of coal. T. A. Peebles. *Power* 38:486-7 S 30 '13

Spoons

Evolution of flatware blanks. C. W. Cook. *il Metal Ind n s* 11:199-200 My '13

Spray process for the production of metallic coatings. M. U. Schoop. *il Met & Chem Eng* 11:89-91 F '13

Spring making machinery

Automatic helical spring machines. *il diags Iron Age* 92:11-3 Jl 3 '13

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Springfield, Mass.**Architecture**

Municipal buildings. Pell & Corbett architects. *il Arch & Bldg* 45:481-6 D '13

Hotels

Hotel Kimball. *il plan Arch & Bldg* 45:65-7 F '13

Water supply

Decolorization of water by the excess-coagulation method. *Eng N* 70:974-5 N 13 '13

Springfield, Missouri**Sanitary affairs**

Sewage disposal plant. *il Munic Eng* 45:459-63 N '13

Travelers for sewage distribution. A. Potter. *il Eng Rec* 68:440-1 O 18 '13

Springs

Increased flow of springs just before rains. S. P. Baird. Eng N 69:83 Ja 9 '13
 Increased flow of springs just before rains. J. Berg. Eng N 69:321 F 13 '13
See also Water, Underground

Springs (mechanism)

Automatic torsion spring machine. diags Iron Age 91:1430 Je 12 '13
 Design of automobile springs. D: Landau and A. Golden. Am Mach 38:148-50 Ja 23 '13
 Methods employed in leaf spring manufacture. E. F. Lake. Il Iron Age 91:701-5 Mr 20 '13
 Reducing spring manufacture to a science; equipment of testing laboratory to facilitate the scientific manufacture of motor vehicle springs. Il plan Iron Tr R 52:567-70 Mr 6 '13
 Riedler on the action of springs. Automobile 28:846-7 Ap 17 '13
 Slide-rule for spring calculations. J. Y. Dahlstrand. Il Mach 19:856-8 Jl '13
 Small spring troubles—their cause and cure. C. Doeschner. Mach 20:311 D '13
 Spiral spring design. J. S. V. Pletts. diag Ind Eng 13:409 S '13
 Spring making and repairing. G. M. Stewart. Ry Age (Mech ed) 87:188-9 S '13
 Tests for leaf springs and their treatment. E. F. Lake. Il Mach 20:217-21 N '13
 Tests of chrome-vanadium spring steel. Il Ry & Eng R 53:108 F '13
 Vanadium springs in locomotive service. Ry & Eng R 53:324 Ap 5 '13
 Winding piano wire tension springs; with data sheet supplement. Mach 19:591 Ap '13
See also Automobiles—Springs; Spring making machinery

Sprinklers

Allowable heights and areas for factory buildings, with and without sprinklers. I. H. Woolson. Am Soc M E J 35:961-9 Je '13; Same cond. Iron Age 91:1399 Je 5 '13; Same cond. Eng M 45:733-4 Ag '13
 Attitude toward automatic sprinklers. I. H. Woolson. Iron Age 91:1399 Je 5 '13
 Automatic sprinkler equipment of loft buildings. E. P. Boone. Il plan Arch & Bldg 45:36-40 Ja '13
 Automatic sprinkler protection for industrial plants. F. P. Walther. Il Eng M 44:79-90 O '12
 Automatic sprinklers as life savers. S. G. Koon. Eng N 70:373 Ag 21 '13; Same. Ind Eng 13:413-4 O '13
 Fire disasters and automatic sprinklers. S. G. Koon. Eng Rec 68:336 S 20 '13
 Fire prevention in metalliferous mines. G: J. Young. Eng M 44:604-6 Ja '13
 Fire protection by automatic sprinklers. S. G. Koon. Sci Am 109:259 O 4 '13

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Selecting the number of teeth for gears and sprockets. G. M. Bartlett. Mach 19:39 S '12

Spruce

Grinding of spruce for mechanical pulp. J. H. Thickens. Il U S Forest Serv Bul 127:1-54 '13

Spruce gum

Spruce gum. Sci Am 109:20 Jl 5 '13

Spruce trees

Octopus of the spruce forest. W: H. Kemper. Il Sci Am S 76:216-7 O 4 '13

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Elements on the stage. Il Sci Am 108:373-4 Ap 26 '13
 Theatrical equipment of the stage. C. L. Hagen. Il plan Arch & Bldg 45:457-64 N '13 (to be cont)
 "Whip" and its mechanism; a ponderous melodrama. Il Sci Am 108:89 Ja 25 '13

Stairways

Another call for the fireproof stairway. Sci Am 109:82 Ag 2 '13
 Emergency stairways for theatres and other buildings. F: Baumann. plan Arch & Bldg 45:110-1 Mr '13
 Value of well-built stairways. Ind Eng 13:414-5 O '13

Stairways, Concrete

Novel concrete stairway at exposition in Köslin, Germany. Il Eng Rec 67:317 Mr 22 '13
 Step form making for economical work. Il Concrete Cem 2:253-4 My '13

Stamp mills

City Deep mill on the Rand, South Africa, battery foundation. plans Eng & Min J 95:951-2 My 10 '13
 New feeder for stamp mills. diags Eng & Min J 96:834 N 1 '13
 Notes on the Hardenberg mill. L: H. Eddy. Eng & Min J 95:502 Mr 8 '13
 Stamp battery water supply. plan Eng & Min J 95:473-4 Mr 1 '13
 Stamp milling in 1912. L: D. Huntoon. Eng & Min J 95:107-8 Ja 11 '13
 Winona stamp-mill. R. B. Seeber. Il Met & Chem Eng 11:549-52 O '13
See also Crushing machinery; Gold milling; Metallurgy; Ore treatment

Stamping machines

Self-aligning fixture for a stamping machine. D. A. Hampson. Mach 19:724 My '13

Stamps

Electric dating stamp. Il Sci Am S 75:245 Ap 19 '13

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Annealed copper standard. Am Inst E E Pro 32:2153-5, 2161-2 N '13
 Cross-sections and symbols. diags Am Mach 38:775-8, 791 My 8 '13
 Discussion on report of the committee on standard cross-sections and symbols. Il Am Soc M E J 35:18-27 Ap '13
 Standard involute gearing. Am Soc M E J 35:1405-20 S '13
 Work in nonferrous metals at the Bureau of standards. G. K. Burgess. Eng N 70:805-6 O 23 '13
See also Electric standards; Units; Weights and measures

Starch

Glucose and starch industry in the United States. Met & Chem Eng 11:698-9 D '13
 Origin and significance of starch: its importance in plant and animal economy. E. D. Clark. Sci Am S 76:318-20 N 15 '13

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Minnesota rate case decision. Ry & Eng R 53:561-3 Je 14 '13
 Supreme court decisions in state rights cases. Ry & Eng R 53:35 Ja 11 '13

Stationery factories

Electric motor drive in a stationery factory. Il Elec W 62:1113-5 N 29 '13

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Steam

Dalton's law in the steam plant. L: Grossbaum. Power 37:163-4 F 4 '13
 Decomposition of steam by heat. A: H. Gill. Power 37:113-4 Ja 28 '13
 Efficiency of underground steam mains. Power 37:862-3 Je 17 '13
 Evaporation. (Engineers' study course) Power 38:312-4, 346-7, 378-9, 410-1 Ag 26-S 16 '13

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- Factor of evaporation. L. C. Roberts. *Power* 37:754 My 27 '13
- Factor of evaporation. A. L. Westcott. *Power* 37:465 Ap 1 '13
- Generation of steam by waste heat from furnaces. F. Peter. *diags Am Inst Min E Bul* 84:2775-2803 D '13
- Heat, combustion and the generation of steam. C. A. McAllister. *Int Marine Eng* 18:18-20 Ja '13
- Kilowatt hours per ton of coal at various evaporations. C. H. Sammons. *Power* 38:194 Ag 5 '13
- Properties of steam. R. C. H. Heck. *Am Soc M E J* 35:1617-30 N '13
- See also* Boilers; Condensers (steam); Evaporators; Steam engineering; Steam engines; Steam flow; Steam heating; Steam pipes; Steam turbines; Steamboats; Thermodynamics
- Steam, Superheated.** *See* Superheated steam
- Steam accumulators**
- Steam accumulator-regenerators. *Iron Age* 91:532-3 F 27 '13
- Steam regenerative accumulators. H. Fothergill. *diags Power* 38:675-8 N 11 '13
- Steam and hot water fitters.** *See* National association of master steam and hot water fitters
- Steam boilers.** *See* Boilers
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- Steam meters. J. A. Knesche. *plans Eng M* 44:393-404, 567-77 D '12-Ja '13
- See also* Boiler plants; Boilers; Evaporators; Indicator diagrams; Locomotives; Marine engineering; Steam engines; Steam plants; Steamboats; Stokers; Mechanical; Superheated steam
- Steam engineers, American order of.** *See* American order of steam engineers
- Steam engines**
- Allis-Chalmers engine. R. D. Tomlinson. *Power* 37:643 My 6 '13
- American locomobile. G. S. Cooper. *Elec Ry J* 42:1297 D 20 '13
- American locomobile; Buckeyemobile. *Power* 38:849-51 D 16 '13
- Augustine rotary engine. *il Power* 37:112-3 Ja 28 '13
- Brownell engine. *Colliery* 33:462-3 Mr '13
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- Clark gear engine. *plan Power* 37:547-8 Ap 15 '13
- Collecting and reusing cylinder oil. E. T. Binns. *il Power* 38:652-3 N 4 '13
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- Corliss versus four-valve engine. S. F. Ferguson. *Power* 38:408 S 16 '13
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- Damage by water in engine cylinders. *diag Power* 38:294-5 Ag 26 '13
- Economy of compression in steam engines. R. R. Fisher. *il Power* 38:159-61 J1 29 '13
- Erie City iron works' Lentz simple non-condensing engine. A. P. Hyde. *Power* 38:443-4 S 23 '13
- Experience with old Brown engine. R. A. Cultra. *diags Power* 38:479 S 30 '13
- Figuring the indicated horsepower. J. C. Smallwood. *Power* 37:242-3 F 19 '13
- First American locomobile. F. R. Low. *il plans Power* 37:696-701 My 20 '13
- Flat-curve engine. A. D. Skinner. *Power* 38:157-9 J1 29 '13
- Gear engine cycle. C. H. Clark. *Sci Am S* 75:318-9 My 17 '13
- German single-cylinder compound engine. *diag Power* 38:413-4 S 16 '13
- High-speed engine wrecked at Benson, Minn. T. K. Lee. *il Power* 37:608-9 Ap 8 '13
- Improved Falls engine stop. *il diags Power* 38:424-5 S 23 '13
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- Improving a high-speed engine. W. H. Wakeman. *diags Elec W* 62:242-3 Ag 2 '13
- Lentz steam engine. S. Rosenzweig. *il plan Ind Eng* 13:64-6 F '13
- Locomotives on the uniflow system. A. Gradenzwitz. *il Power* 38:714-5 N 18 '13
- Lubricating engines in cold weather. J. C. Hawkins. *Power* 38:762 N 25 '13; *Same. Sci Am S* 76:375 D 13 '13
- McAndrew's floating school. C. A. McAllister. *Int Marine Eng* 18:169-70, 212-4, 259-61, 310-2, 342-6, 393-5 Ap-S '13
- New American-Ball paper-mill engine. *il Ind Eng* 13:222-4 My '13; *Power* 37:629-30 My 6 '13; *Sci Am S* 75:284-5 My 3 '13
- New cycle of the gear engine. C. H. Clark. *Sci Am* 108:335 Ap 12 '13
- New gear engine. *il Sci Am* 108:249 Mr 15 '13
- Operating results with an American locomobile. *Elec W* 62:1279-80 D 20 '13
- Overhauling an electric station engine. J. F. Hobart. *Elec W* 61:154 Ja 18 '13
- Philosophy of the uniflow steam engine. *Eng N* 69:1133 My 29 '13
- Present status of the locomobile. W. H. Miller. *il Elec W* 62:326-7 Ag 16 '13
- Recent improvements in the reciprocating engine art. *il Sci Am* 109:36-7 J1 12 '13
- Rolling-mill engines. R. L. Streeter. *il Eng M* 44:16-35 O '12
- Self-contained prime mover; Buckeye-mobile. *il diag Elec Ry J* 42:637 O 11 '13
- Shuman-Haines steam engine and solar power. *il Sci Am S* 76:29-32 J1 12 '13
- Steam consumption of 4-valve engines. *Power* 37:546-7 Ap 15 '13
- Steam-power unit of remarkable efficiency; Buckeye-mobile. *il diag Ind Eng* 13:399-401 S '13
- Uniflow cylinder adapted to locomobiles. W. H. Miller. *il Elec W* 62:369-90 O 4 '13
- Water hammer in steam engines. F. Gyseling. *plan Am Soc M E J* 35:1057-60 Je '13
- Wittig rotary steam engine. *diag Automobile* 28:1062 My 22 '13
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History

- Bi-centennial of the steam engine. E. H. Low. *plans Power* 37:485-7 Ap 8 '13

Testing

- Load curves from ideal Corliss engines. *Power* 37:295 Mr 4 '13
- Remarkable maintained economy test. A. D. Skinner. *Power* 38:566 O 21 '13
- Reversing engine and turbine efficiency tests; relative economy for driving a blooming mill. J. A. Knesche. *plans Iron Tr R* 52:40-8 Ja 2 '13
- Test of Lentz engine. *il Power* 37:104-5 Ja 28 '13
- Test on 19x21-in. Lentz simple engine. S. Rosenzweig. *Power* 38:795-6 D 2 '13
- Tests of a simple noncondensing Lentz engine. J. A. Moyer. *diag Power* 38:779-80 D 2 '13

Steam fitting. *See* Pipe fittings**Steam flow**

- Flow of steam in pipes. A. E. Berggren. *Power* 38:802 D 2 '13
- Flow of steam through orifices. A. Loschge. *Am Soc M E J* 35:707-11 Ap '13
- Flow of steam through pipes. H. V. Carpenter. *Power* 37:816-7 Je 10 '13

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- Location of steam gages in setting safety valves. C. T. Rommel. *diags Ry Age (Mech ed)* 87:533-6 O '13

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- Steam hammers. *il Colliery* 33:658-9 Je '13

Steam heating

- Analysis of motor-service and heating costs in a jewelry factory; Coddling-Heilborn co., North Attleboro, Mass. Elec W 61:1369-70 Je 21 '13
- Central station vapor heating at Cleveland. il diags Dom Eng 63:336-8 Je 21 '13
- Changing a heating plant from high to low pressure steam. C. E. Daniell. diags Heat & Ven 10:17-21 Je '13
- Circuit system and the divided circuit system of steam heating. A. G. King. Dom Eng 64:122-4 Ag 2 '13
- Coal to heat factory buildings. J. D. White. Power 38:857 D 16 '13
- Comments on figuring radiation for steam heating systems. Dom Eng 65:137-8 N 1 '13
- Condensing plants for large commercial buildings. I. N. Evans. Power 37:88-9 Ja 21 '13
- District heating by steam and hot water. L. B. Lent. Power 37:606-8 Ap 29 '13
- District steam heating with high-pressure steam in Cleveland. F. W. Ballard. map diags Power 37:783-6 Je 3 '13; Same. Heat & Ven 10:21-8 Je '13; Same cond. Ind Eng 13:321-2 Jl '13
- Figuring radiation for a steam heating system. Dom Eng 65:40-1 O 11 '13
- Gravity return heating system that does not work right. il Dom Eng 63:151-3 My 10 '13
- Heat and power in manufacturing processes. S. H. Bunnell. Iron Age 91:378 F 6 '13
- Heat transmission with pipe coils and cast-iron heaters under fan blast conditions. L. C. Soule. plan Power 38:435-7 S 23 '13
- Heating a concrete building by low pressure steam apparatus. Dom Eng 64:65 Jl 19 '13
- Heating a New England house with steam. E. R. Pierce. plans Dom Eng 65:133-5, 228-30, 264-6 N 15-29 '13
- Heating and ventilating apartment house. plans Dom Eng 63:118-26 My 3 '13
- Heating and ventilating details of the New York general post-office. il plans Heat & Ven 10:11-20 Mr '13
- Heating and ventilating in Greenpoint hospital. H. L. Alt. plans Dom Eng 64:208-12 Ag 23 '13
- Heating and ventilating the hotel McAlpin. J. Graham. il plans Dom Eng 63:5-13 Ap 5 '13
- Heating and ventilation of office buildings. J. Graham. plans Dom Eng 63:276-9 Je 7 '13
- High-pressure steam heating vs. hot-water by-product plant. I. N. Evans. Power 38:169-72 Jl 29 '13
- Hotel McAlpin heating system. il Heat & Ven 10:43 Ag '13
- How to heat building with exhaust steam from plant across street. diag Dom Eng 65:166-7 N 8 '13
- Is district heating profitable to the central station? C. J. Davidson. Heat & Ven 10:26-9 Jl '13
- Live-steam connections to exhaust-steam heating system. B. R. Leeds. plan Power 37:864 Je 17 '13
- Methods of estimating radiation and types of radiating surfaces. A. G. King. plans Dom Eng 63:61-4 Ap 19 '13
- Mills overhead system of steam heating. Dom Eng 64:98-101 Jl 26 '13
- One-pipe system without returns. A. G. King. Dom Eng 63:339-41 Je 21 '13
- Operating economies in heating large factory buildings. E. L. Wilder. Heat & Ven 10:17-20 Jl '13; Same cond. Power 38:302-3 Ag 26 '13
- Physical action of steam and forced hot-water heating systems. I. N. Evans. Power 38:232-6 Ag 12 '13
- Reliable vacu-vapor heating system. il Dom Eng 65:52-3 O 11 '13
- Remedy for insufficient heating capacity. il Heat & Ven 10:35-6 Ja '13
- Remodeled heating and ventilating job; Broadway convention hall, Buffalo, N. Y. plans Dom Eng 62:124-6 F 1 '13
- Remodeling a low-pressure steam heating system. diags Dom Eng 64:152-3 Ag 9 '13

- Service equipment of the Samaritan hospital. Troy, N. Y. C. F. Herington. plans Eng N 70:108-11 Jl 17 '13
- Steam-loop and gravity-return system. J. C. Hawkins. plans Power 37:854-6 Je 17 '13
- Theory and practice in engineering. K. Meier. diags Heat & Ven 10:13-5 Ag '13
- Troubles of steam heating systems. C. H. Bromley. plan Power 37:532-4 Ap 15 '13
- Two-pipe system, for high and low pressure work. A. G. King. Dom Eng 64:37-9 Jl 12 '13
- Various types of steam and hot water heating systems. A. G. King. Dom Eng 63:182-3 My 17 '13

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Rates

- Double fallacy of flat rates for steam heating. Elec W 62:593 S 20 '13
- Meter rate versus flat rate for steam heating service. H. R. Wetherell. Heat & Ven 10:33-5 D '13
- Metered versus flat-rate steam-heating service. Elec W 62:88-9 Jl 12 '13

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- Air line of a vacuum system. diag Dom Eng 65:136 N 1 '13
- Heating and ventilation of office buildings. J. Graham. il plan Dom Eng 64:2-4 Jl 5 '13
- Vacuum heating systems. Heat & Ven 10:39-40 Mr '13

Steam jackets

- Jacketing applied to steam cylinders. H. Hanszel. Power 37:368-70 Mr 18 '13

Steam meters

- Integrating steam-flow meter. il Elec W 61:1267 Je 7 '13
- Steam meters. J. A. Knesche. plans Eng M 44:393-404, 567-77 D '12-Ja '13
- Venturi steam meter. C. G. Richardson. il diags Power 38:493-5 O 7 '13

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See also Marine engines; Steamboats

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- Efficiency of underground steam main construction. Heat & Ven 10:31-3 My '13
- Efficiency of underground steam mains. Power 37:862-3 Je 17 '13
- Insulating 3,000 ft. of underground steam piping. il Heat & Ven 10:48-9 F '13
- Present practice in insulating underground steam lines. Heat & Ven 10:42-3 Jl '13
- Steam pipe coverings. Eng & Min J 95:805-6 Ap 19 '13
- Unit costs of covering pipe. R. K. Stockwell. Eng & Min J 95:619 Mr 22 '13
- Value of pipe covering in dollars and cents. O. E. Trautmann. Dom Eng 62:126-8 F 1 '13

Steam pipes

- Expansion in high-pressure steam piping. diags Ind Eng 13:351-3 Ag '13
- Maciejewski corrugated tube for steam apparatus. il Ind Eng 13:402 S '13
- Pipe sizes and steam velocities. C. W. Ham. Power 37:558-9 Ap 22 '13
- Pipes and valves. C. A. McAllister. diags Int Marine Eng 18:493-6 N '13
- Sectional conduit system for steam pipes. il Elec W 61:161-2 Ja 18 '13
- Steam pipe troubles. diags Int Marine Eng 18:404-6 S '13
- Steam power plant piping details. W. F. Fischer. diags Mach 19:443-7, 531-4, 600-2, 702-6, 956-60; 20:31-5, 210-3 F-My, Ag-S, N '13

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Steam plants

- Boiler plant of American sugar co., South Boston, Mass. E. F. Learned. il plan Power 38:524-6 O 14 '13
- Comparative cost of gas and steam plants. L. E. Lent. Power 38:365-6 S 9 '13
- Comparative economy of producer gas and steam for pumping stations. Eng Rec 68:262-3 S 6 '13

Steam plants *Continued.*

- Conditions when estimating the cost of power plants. F. W. Gay. *Power* 37:777 Je 3 '13
- Gorge steam station of the Northern Ohio traction & light co., of Akron, O., at Cuyahoga Falls. J. C. Lathrop. *il plans Elec W* 62:419-24 Ag 30 '13
- Lentz engines in Baltimore office building. W. O. Rogers. *il Power* 38:556-8 O 21 '13
- New power plant at Weber wagon works, Chicago. A. R. Maujer. *il Power* 37:730-4 My 27 '13
- New steam turbine connections. G. H. Gibson. *diags Iron Age* 91:1226 My 22 '13
- Oil as a supplementary fuel in steam power-plants. R. Trautschold. *il Eng M* 45:695-700 Ag '13
- Planning of a large modern steam generating station. *Elec W* 61:95-6 Ja 11 '13
- Power matters in textile mills. F. W. Dean. *Power* 37:550-1 My 6 '13
- Rapid construction of Jordan steam station, Salt Lake City. *il Eng N* 69:216-7 Ja 30 '13
- Regulation of steam heating corporations in New York. *Heat & Ven* 10:45-7 O '13
- Remodeling the Copley Square hotel power plant, Boston. W. E. Barney. *il Power* 37:212-3 F 18 '13
- Steam power plant piping details. W. F. Fischer. *diags Mach* 19:413-7, 531-4, 600-2, 702-6, 956-60; 20:31-5, 210-3 F-MY, Ag-S, N '13
- Waterbury steam plant. C. R. Harte. *il Elec W* 61:449 Mr 1 '13; *Same. Elec Ry J* 41:367 Mr 1 '13
- Waterside turbine station at Louisville, Ky. *il Elec W* 62:837-40 O 25 '13

See also Boiler plants; Draft; Electric plants; Power plants; Steam; Steam engineering; Steam engines

Steam power

- Heat and power in manufacturing processes. S. H. Bunnell. *Iron Age* 91:378 F 6 '13
- See also* Power: Power cost; Steam engineering; Steam engines; Steam plants

Steam power plants. *See* Steam plants

Steam pumps. *See* Pumping machinery

Steam regenerative accumulators. *See* Steam accumulators

Steam removal

- Regulating the air conditions in a glove steaming room of Julius Kayser & co., Brooklyn, N. Y. *plans Heat & Ven* 10:20-6 Ap '13
- Removal of steam from dye houses. *Heat & Ven* 10:44 Ap '13

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Steam separators

- Steam power plant piping details. W. F. Fischer. *Mach* 19:703-5 My '13

Steam shovels

- Safety rules—steam shovels. *Eng & Min J* 96:401-2 Ag 30 '13
- Steam shovel for cleaning up overburden from a Mesabi orebody. *il Eng & Min J* 96:1159-60 D 20 '13
- Steam-shovel work. *Eng & Min J* 96:1221-2 D 27 '13

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Steam stuff. *Power* 37:345-6 Mr 11 '13

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- Steam tables. (Engineers' study course) *Power* 38:346-7 S 2 '13

Steam traps

- Application of steam traps for evaporating installations. *il Met & Chem Eng* 11:533-4 S '13
- Location of steam heat traps on cars. *Ry Age* (Mech ed) 87:328 Je '13
- Lytton vacuum and lifting trap. *il diag Power* 38:771 N 25 '13
- Points about steam traps. G. J. Little. *il Power* 37:59 Ja 14 '13
- Steam traps on exhaust lines. W. H. Wake-man. *il Power* 38:458-9 S 30 '13
- Traps and piping of return systems. H. L. Peiler. *Power* 37:463 Ap 1 '13

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Steam turbines

- Acadia coal company's steam-turbine plant; generating station for the mines at Stelarton, Nova Scotia, burning culm. *il Elec W* 61:145-8 Mr 1 '13
- Advantages of the steam turbine. J. S. Leese. *Power* 37:514 Ap 8 '13
- Cambridge, Mass. central-station practice. *il plans Elec W* 61:824-6 Ap 19 '13
- Connecting steam turbines for operating on exhaust steam. G. H. Gibson. *il diags Colliery* 34:60-2 Ag '13
- DeLaval velocity-stage turbine. *il Power* 38:358-9 S 9 '13
- Design and construction of steam turbines, by H. M. Martin. *Review. Int Marine Eng* 18:178 Ap '13
- Developments in steam turbines. H. T. Herr. *J Fr Inst* 175:627-47 Je '13
- Developments in turbine reverse buckets. O. D. H. Bentley. *il Power* 37:523-5 Ap 15 '13
- Direct-current turbo-generators with reduction gears for railway service. *il Elec Ry J* 41:326-9 F 22 '13
- Exhaust steam and combined turbines. K. Röder. *Am Soc M E J* 35:1294-5 Ag '13
- Expression of steam turbine efficiency. *Elec Ry J* 42:367 S 6 '13
- Ferranti and his turbine. F. R. Low. *diags Power* 38:908-11 D 30 '13
- Ferranti high-temperature steam turbine. *Ind Eng* 13:129 Mr '13
- Ferranti on prime movers. *Elec W* 61:233-4 F 1 '13
- Ferranti steam gas turbine. *Power* 37:246-7 F 18 '13
- Field for small steam turbines. W. J. A. London and A. P. Peck. *Power* 37:214-6 F 18 '13
- High efficiency of modern steam turbine stations. R. H. Rice. *Iron Age* 91:1305 My 29 '13
- Increase of bore of wheels by centrifugal stresses. *diag Mach* 19:520-3 Mr '13
- Interborough rapid transit co.; New York city, 30,000-kw. steam turbine generating units. *il Eng N* 70:428-9 Ag 28 '13
- Limit of steam-turbine size. *Power* 38:759 N 25 '13
- Limiting size of steam turbine units. *Sci Am S* 76:386-7 D 20 '13
- Low-pressure steam turbines; economic advantages. J. Strauss. *Power* 38:220-3 Ag 12 '13
- Low-pressure turbine in Astoria veneer mill & dock co., Steinway, L. I. *plan Power* 38:887 D 23 '13
- Mixed-pressure steam turbine. L. G. Hammer. *Power* 38:6-7 Jl 1 '13
- Mixed-pressure steam turbines. *Power* 37:749 My 27 '13
- Mixed pressure turbo-generator installation. T. W. Reed. *il Power* 38:76-7 Jl 15 '13
- Modern experiments and experiences with materials for turbine blades for high temperatures. Schulz. *Am Soc M E J* 35:1187-8 Jl '13
- New steam turbine connections. G. H. Gibson. *diags Iron Age* 91:1226 My 22 '13
- New type of Terry condensing turbine. *il Power* 38:598-9 O 28 '13; *Eng M* 46:sup 6-8 N '13; *Int Marine Eng* 18:501 N '13; *Ind Eng* 13:521-5 D '13
- New York's largest turbine: 30,000-kw. cross-compound turbine for the Interborough's seventy-fourth st. station. *il Power* 38:323 S 2 '13
- Powerful turbines for New York subway power plant. *il Eng Rec* 68:sup 53 Ag 23 '13
- Problem of the low-pressure steam turbine. *Eng Rec* 67:595 My 31 '13
- Radial-flow reaction turbine. *il Elec W* 62:1127-8 N 29 '13
- Re-blading a Parsons steam turbine. N. I. Mosher. *il diags Mach* 20:257-9 D '13
- Recent developments in steam turbines. H. T. Herr. *il plans J Fr Inst* 175:91-128, 273-327, 385-412, 511-30 F-MY '13

Steam turbines - Continued.

- Recent steam turbine practice; developments in the Parsons, Curtis, Rateau, and Zoelly turbines. K. Baumann. Eng M 44:427-30 D '12
- Reversing engine and turbine efficiency tests: relative economy for driving a blooming mill. J. A. Knesche. plans Iron Tr R 52: 40-8 Ja 2 '13
- Sealing glands of low-pressure turbines. P. L. Werner. diag Power 38:654 N 4 '13
- Should exhaust steam be wasted? P. B. Coulston. Colliery 34:41-2 Ag '13
- Spiro steam turbine. il Colliery 33:464-5 Mr '13
- Standard turbine cylinder molding practice. C. A. Tupper. il Foundry 41:47-50 F '13
- Steam turbine efficiencies. Ind Eng 13:363-4 Ag '13
- Steam turbine street cars for Long Island. Sci Am 109:183 S 6 '13
- Steam turbines in a modern isolated plant. il Power 38:664-5 N 4 '13
- 33,500-hp. British-built steam turbine of the Commonwealth Edison co., Chicago. il plan Eng N 70:940-3 N 6 '13
- Thomson-Houston mixed pressure steam turbine. R. F. Halliwell. plan Power 37:241-2 F 18 '13
- Turbines and Diesel engines in central stations. M. Gercke. Power 37:286-9 Mr 4 '13
- 25,000-kw. turbine for Fisk street station of the Edison commonwealth co. il Power 38: 630-4 N 4 '13
- Unique turbo-generators for the Interborough rapid transit co. of New York. Elec Ry J 42:309 Ag 23 '13

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- Determination of steam consumption. E. B. Smith. plan Power 37:441-3 Ap 1 '13
- Results of tests of Spiro turbines. H. Coward. il plan Power 37:736-7 My 27 '13
- Testing small steam turbines. R. C. Allen. il diag Power 37:808-12 Je 10 '13

Steam turbines, Marine

- Application to marine service. H. T. Herr. il plans J Fr Inst 175:310-27 Mr '13
- Device to facilitate the coupling of cruising turbines. H. E. Yarrow. diag Int Marine Eng 18:397-8 S '13
- Electrical propulsion of ships. W. L. R. Emmet. il diag J Fr Inst 176:43-60 Jl '13
- Geared turbines for ship propulsion. Iron Age 91:841 Ap 3 '13
- Influence of air pumps on the military efficiency of turbine-driven warships. D. B. Morison. il Int Marine Eng 18:420-5 O '13
- Marine turbine operation and economy. H. C. Dinger. Int Marine Eng 18:70-1, 109-11 F-Mr '13
- Trials of three ferry steamers propelled by geared turbines. J. Inglis. Int Marine Eng 18:347-9 Ag '13
- Turbine reduction gear in relation to battleship fighting power. il diag Sci Am 109: 317-8 O 25 '13
- Turbo-generator sets for the Great Northern steamship Minnesota. il Int Marine Eng 18:514-5 D '13

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Steam yachts. See Yachts**Steamboat disasters**

- Burning of the Sarah Sands. F. B. C. Bradley. il Int Marine Eng 18:82-3 F '13

Steamboat inspection

- Safety of life at sea. J. Donald. J Fr Inst 175:22-36 Ja '13

Steamboats

- American steamers on the Magdalena river. il Int Marine Eng 18:478-80 N '13
- Aquitania. il Sci Am S 75:264-5 Ap 26 '13
- Atlantic steamships—a retrospect: thirteen years' development. J. B. Walker. il Sci Am 109:472-3 D 20 '13
- Berkshire, a new Hudson river steamboat. il Arch & Bldg 45:355-60 S '13
- Chesapeake Bay service new steamers. il plans Int Marine Eng 18:158-60 Ap '13
- Clyde line coastwise steamship Lenape. il plans Int Marine Eng 18:139-44 Ap '13

- Cunard liner Aquitania. il Eng M 45:580-2 Jl '13
- French liner Lutetia. il Int Marine Eng 18: 535-6 D '13
- Great Lakes steamers for coastwise service. il plans Int Marine Eng 18:47-52 F '13
- Great South Bay passenger vessel, Patchogue. il plans Int Marine Eng 18:75 F '13
- Greatest side-wheel steamer afloat: the "Secandbee." il Sci Am 109:415 N 29 '13
- Greatest steamer in the world: Imperator's marvels. il Sci Am 108:562-3 Je 21 '13
- Hamburg-American liner Imperator. il Int Marine Eng 18:216-7 My '13
- Hudson river steamer Berkshire. il Int Marine Eng 18:282 Jl '13
- Hudson river steamer Washington Irving. il Int Marine Eng 18:275-8 Jl '13
- Imperator; details of the equipment. il Eng M 44:107-9 O '12
- Launch of the latest giant steamship: some details of the Vaterland. il Sci Am S 75: 232-3 Ap 12 '13
- Lumber schooner John A. Hooper. il plan Int Marine Eng 18:72 F '13
- Maiden voyage of the Imperator. J. B. Walker. Sci Am 108:578 Je 28 '13
- Mail and passenger steamship Kyle for Newfoundland. F. C. Coleman. il plan Int Marine Eng 18:292-3 Jl '13
- Matsonia, a steel single-screw steamship. diag Int Marine Eng 18:432-4 O '13
- Menhaden fishing steamer, Joseph H. Bellows. G. A. Dean, jr. il Int Marine Eng 18:100-1 Mr '13
- Modern German stern-wheel steamers. E. Van Der Werf. plan Int Marine Eng 18:464-6 N '13
- New Pacific coastwise steamship Congress. il plans Int Marine Eng 18:283-6 Jl '13
- Old Dominion line's freight steamer Tyler. il plans Int Marine Eng 18:369-74 S '13
- Power aboard the Imperator. il Power 38: 50-2 Jl 8 '13
- Quadruple screw French liner Lutetia. il Int Marine Eng 18:246-7 Je '13
- Regulating smoke on river steamboats within city limits. Eng Rec 67:233-4 Mr 1 '13
- S. S. Imperator of the Hamburg-American line. il Eng N 70:49-50 Jl 10 '13
- Safety of life at sea. J. Donald. J Fr Inst 175:15-42 Ja '13
- Shallow draft oil steamer Comte de Flandre. plan Int Marine Eng 18:466 N '13
- Side-wheel passenger steamer See-and-Bee. il diag Int Marine Eng 18:252-8 Je '13
- Single screw molasses tank steamer Amolco. plans Int Marine Eng 18:378-82 S '13
- Steamers Narragansett and Manhattan for Central Vermont railway. il Int Marine Eng 18:339-41 Ag '13
- Stern recess wheel steamer Osceola. plan Int Marine Eng 18:481-3 N '13
- Transatlantic steamship with reciprocating engines and exhaust turbines, the Rochambeau. plan Eng N 69:303 F 13 '13
- Trial runs of the Pacific liner "Congress." il Int Marine Eng 18:415-9 O '13
- Trials of three ferry steamers propelled by geared turbines. J. Inglis. Int Marine Eng 18:347-9 Ag '13
- Turbine steamer Alsatian for the Allan line. il Int Marine Eng 18:165-6 Ap '13
- Western river steamers, engines and boilers. E. A. Burnside. il Int Marine Eng 18:459-63 N '13
- Yukon river boat Alaska. il Int Marine Eng 18:472-3 N '13

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- Accumulations in steel of scrap impurities. A. H. Jameson. Iron Age 92:406 Ag 21 '13
- Ae 1, the equilibrium temperature for A 1 in carbon steel. H. M. Howe. Am Inst Min E Bul 78:1067-74 Je '13

Steel —Continued.

- Annealing steel in alternating magnetic field. *Sci Am S* 75:311 My 17 '13
- Cleaning of steel and iron. C. S. Thompson. *Metal Ind n s* 11:419-20 O '13
- Coloring iron and steel products. E. F. Lake. *Mach* 19:778-9 Je '13
- Converter for melting iron and blowing steel. *il Foundry* 41:33-6 Ja '13
- Copper-bearing steel and corrosion. *Iron Age* 92:572-3 S 11 '13
- Crystalline growth of strained ferrite. A. Sauveur. *il Iron Age* 91:258-60 Ja 23 '13
- Crystallization of steel through fatigue. F. Rogers. *Iron Age* 92:551-5 S 11 '13
- Determination of the position of Ae3 in carbon-iron alloys. H. M. Howe and A. G. Levy. *Am Inst Min E Bul* 78:1075-92 Je '13; Discussion. *il* 84:2841-56 D '13
- Discussion of the existing data as to the position of Ae3. H. M. Howe. *Am Inst Min E Bul* 78:1099-1136 Je '13
- Electric steel in competition with open-hearth steel. *Automobile* 29:64 Jl 10 '13
- Essentials in the making of the finer steel sheets. J. G. Homan. *Met & Chem Eng* 11:253-4 My '13
- Grain growth in silicon steel. W. E. Ruder. *il Am Inst Min E Bul* 84:2805-22 D '13
- Heat transformation of old steel bar. A. C. Hough. *Eng Rec* 67:548 Je 7 '13
- Heat-treated automobile frame steel. D. K. Bullens. *il Iron Age* 92:171-4 Jl 24 '13
- Hot and cold methods of oxidizing sheet steel. C. H. Proctor. *Metal Ind n s* 11:375 S '13
- Influence of copper upon physical properties of steel. G. H. Clevenger and B. Ray. *bibliog il Am Inst Min E Bul* 82:2437-75 O '13; Discussion. 84:2936-40 D '13
- Influence of various elements on the absorption of carbon by steel. R. R. Abbott. *Am Inst Min E Bul* 82:2389-2400 O '13; Discussion. 84:2890-2 D '13
- Investigation of a broken German car axle. *il Iron Age* 92:1107 N 13 '13
- Manufacture of electrical sheets. J. G. Homan. *il Iron Age* 91:50-1 Ja 2 '13
- Mining engineers discuss iron and steel topics. *Iron Tr R* 53:761-2 O 23 '13
- New high-speed steel. *il Ind Eng* 13:387 S '13
- Non-metallic impurities found in steel. *Iron Age* 91:240-2 Ja 23 '13
- Notes on chemistry and metallurgy in Great Britain. *Met & Chem Eng* 11:465-6 Ag '13
- Over-oxidation of steel. W. R. Shimer and F. O. Kiehline. *il Am Inst Min E Bul* 81:2361-77 S '13; Discussion. 84:2941-52 D '13
- Production of steel for castings. *Iron Age* 92:509 S 4 '13
- Relative properties of acid and basic steel. C. Campion and J. G. Longbottom. *Iron Age* 92:658-60 S 25 '13
- Resistance of steels to wear in relation to hardness and strength. G. L. Norris. *diag Mach* 20:109-10 O '13; Same cond. *Ind Eng* 13:491-2 N '13
- Revision of the specifications for steel. *Iron Age* 92:28-9, 49-52 Jl 3 '13
- Selecting and specifying protective coats for iron and steel. J. C. Smith. *Eng M* 44:334-9 D '12
- Steel and its corrosion. *Eng M* 45:569-70 Jl '13
- Steel of similar chemical composition may differ largely in quality. *Automobile* 29:158 Jl 24 '13
- Strength and ductility of iron, steel and bronzes at high temperatures. *Eng N* 69:372-4 F 20 '13
- Surface quality in steel. *Met & Chem Eng* 11: 64 F '13
- Transformation point apparatus. *il Met & Chem Eng* 11:221-2 Ap '13
- Vogue of special steels. *Sci Am S* 76:135 Ag 30 '13
- See also* Annealing; Armor plate; Bessemer process; Cars, Steel; Concrete, Reinforced; Corrosion and anti-corrosives; Foundry practice; Iron; Manganese steel; Metallurgy; Metals; Nickel steel; Open hearth process; Railroads (ies, Steel; Rails; Semi-steel; Springs (mechanism); Steel castings; Steel construction; Steel industry; Steel ingots; Steel metallurgy; Steel works; Tanks; Tool steel; Tubes; Type, Steel; Vanadium steel; Wire; Wire rope

Analysis

- Application of the electric resistance furnace to determination of oxygen in iron and steel. R. H. McMillen. *il Iron Age* 91:308-9 Ja 30 '13; Same. *Met & Chem Eng* 11: 86-7 F '13
- Determination of chromium in steel. F. Garrett. *Iron Age* 91:890-1 Ap 10 '13
- Determination of oxygen in iron and steel. *Iron Age* 92:290-1 Ag 7 '13
- Determination of oxygen in iron and steel; Ledebur method. W. R. Fleming. *il Iron Age* 91:1540-2 Je 26 '13; Same *Iron Tr R* 53:126-9 Jl 17 '13
- Nitrogen and its effect on steel. *Iron Age* 91:1457 Je 12 '13
- Nitrogen, its influence in steel. *Met & Chem Eng* 11:121-2 Mr '13
- Rapid determination of carbon in steel. W. R. Fleming. *il Iron Age* 91:96-7 Ja 2 '13
- Rapid determination of nickel in steel. *Iron Age* 92:399 Ag 21 '13

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Specifications

- Extras—reason and necessity therefor. J. L. Replogle. *Iron Tr R* 53:785-6 O 30 '13
- Iron and steel specifications revised. *Iron Tr R* 53:27-9; 34-9 Jl 3 '13
- Revision of the specifications for steel. *Iron Age* 92:28-9, 49-52 Jl 3 '13
- Specifications for open-hearth steel blooms, billets and slabs for forging purposes. *Met & Chem Eng* 11:88-9 F '13
- Specifications for steel for forgings adopted by Assn. of Am. steel manufacturers. *Iron Age* 91:264-5 Ja 23 '13
- Standard specifications for steel. *Ry Age* 55: 16-8 Jl 4 '13
- Three new specifications for iron and steel. *Iron Age* 92:52-4 Jl 3 '13
- Typical specifications for steel castings. E. F. Cone. *Iron Age* 92:223-5 Jl 31 '13

Testing

- Copper in steel—its influence on corrosion. D. M. Buck. *il Iron Age* 91:931-6 Ap 17 '13
- Drilled holes in structural steel. *il Iron Age* 92:446 Ag 28 '13; *Ind Eng* 13:494 N '13
- Early use of the microscope at iron and steel works. P. Kreuzpointner. *Iron Age* 92:359 Ag 14 '13
- Fatigue testing machine at Sibley College. G. B. Upton. *il diag Sci Am S* 76:372-3 D 13 '13
- Grinding wheel sparks; how they indicate the character of steel. R. G. Williams. *il Sci Am S* 75:292-3 My 10 '13
- Iron and steel committee of Society of automobile engineers furnish test figures. *il Automobile* 28:1220-1 Je 12 '13
- Microscope in the iron and steel industry. A. Sauveur. *il Iron Tr R* 52:1303-7 Je 5 '13; Same cond. *Iron Age* 91:1370-1 Je 5 '13
- Microscopic examination of steel by new method. *il Iron Tr R* 53:854-5 N 6 '13
- Microscopic revelations of steel structures. E. F. Lake. *il Mach* 19:690-4 My '13
- Preparing steel for the microscope. A. Campion and J. M. Ferguson. *il Iron Age* 92:561 S 11 '13
- Resistance of steel to wear. G. L. Norris. *Iron Tr R* 53:75-6 Jl 10 '13
- Results of drill-steel tests on the Rand. *Eng & Min J* 96:786-7 O 25 '13
- Shock tests of cast steel. J. H. Hall. *il Am Inst Min E Bul* 79:1247-56 Jl '13; Discussion. 84:2904-35 D '13
- Tensile test piece and holder. K. W. Zimmerschied. *il diag Iron Age* 92:397 Ag 21 '13
- Test that counts. W. A. Webb. *Mach* 20:127 O '13
- Testing case-hardened steel: M. A. Ammon's investigations. *Iron Tr R* 52:29 Ja 2 '13

Steel—Testing — Continued.

- Thermal and microscopical examination of Professor Howe's standard commercial steels. G. K. Burgess and others. *Am Inst Min E Bul* 78:1093-8 *Je* '13
- Tool steel for the United States navy. *Iron Age* 91:839-41 *Ap* 3 '13
- Use of the microscope in the study of metals. E. F. Cone. *il Iron Age* 92:840-2 *O* 16 '13

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Steel, Hardening of

- Carbonization of shafting. *Mach* 20:275-7 *D* '13
- Case carbonizing; discussion of paper by M. T. Lothrop. *diags Am Soc M E J* 35:667-75 *Ap* '13
- Case hardening. G. Massar. *diags Ry Age (Mech ed)* 87:491 *S* '13
- Case hardening at the Cambria works, Johnstown, Pa. *diags Iron Age* 91:943 *Ap* 17 '13
- Electric furnace for hardening tools made by General electric co. *il plans Iron Tr R* 53:129-30 *Jl* 17 '13; *Iron Age* 92:174-5 *Jl* 24 '13
- Hardening and tempering steel. *il Mach* 20:103-6 *O* '13
- Hardening hammer dies. W. E. Snow. *diags Mach* 19:760-2 *Je* '13
- Investigation of steel case-carbonizing. M. T. Lothrop. *Iron Tr R* 52:259-60 *Ja* 23 '13
- Practical talk on case-hardening. F. Nicholson. *Power* 38:658-9 *N* 4 '13
- Testing case-hardening steel: M. A. Ammon's investigations. *Iron Tr R* 52:29 *Ja* 2 '13

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Steel, Heat treatment of

- Cast steel in the blacksmith shop. G. F. Hinkens. *Ry Age (Mech ed)* 87:492-3 *S* '13
- Commercial plant of W. S. Bidle company, Cleveland, for heat treating steel. *il Iron Age* 92:1203-5 *N* 27 '13
- Committee report and papers on the heat-treatment of iron and steel. *Iron Tr R* 53:35-7 *Jl* 3 '13
- Comparative notes on steel rail rolling. R. W. Hunt. *Ry Age* 54:399-4 *F* 28 '13; Same. *Am Inst Min E Bul* 77:879-83 *My* '13
- Electric furnace heat-treatment of steel. E. F. Lake. *il Mach* 20:111-4 *O* '13
- Heat-treated automobile frame steel. D. K. Bullens. *il Iron Age* 92:171-4 *Jl* 24 '13
- Heat-treated gears in machine tools. A. C. Gleason. *diags Iron Age* 92:1020-3 *N* 6 '13; Same. *Iron Tr R* 53:1143-6 *D* 25 '13
- Heat-treated gears in machine tools. J. H. Parker. *plan Iron Age* 92:1154-6 *N* 29 '13; Same. *Mach* 20:294-6 *D* '13
- Heat treating at an automobile engine plant: Continental motor mfg. co., Detroit. *il plans Iron Age* 91:71-3 *Ja* 2 '13
- Heat treating plant, Juniata shops, Pennsylvania railroad. *plans Ry & Eng R* 53:1199 *D* 27 '13
- Heat treatment of alloy steels. A. F. Mitchell. *Ry & Eng R* 53:326-7 *Ap* 5 '13
- Heat-treatment of carbon-steel. J. H. Baker. *Iron Tr R* 53:960-1 *N* 27 '13
- Heat-treatment of carbon steel castings. J. H. Hall. *il Iron Tr R* 53:81-4 *Jl* 10 '13
- Heat-treatment of gears at the Boston gear works, Norfolk Downs, Mass. G. L. Colburn. *il diags Mach* 19:757-9 *Je* '13
- Heat treatment of metals. J. A. Ridgely. *Ry Age (Mech ed)* 87:492 *S* '13
- Heat treatment of steel—case carbonizing; abstract of paper read before Am. soc. M. E. M. T. Lothrop. *Am Mach* 38:131-5 *Ja* 23 '13

- Influence of mass in heat treatment of steel K. W. Zimmerschild. *diag Iron Tr R* 53:81-5 *Jl* 10 '13
- Kerosene for steel heating furnaces. H. C. Spillman. *il plan Mach* 20:125-6 *O* '13
- Methods of heat-treating steel with electricity. E. F. Lake. *il diags Mach* 20:278-82 *D* '13

Microscopic revelations of steel structures.

- E. F. Lake. *il Mach* 16:690-4 *My* '13
- Modern tool steels and high-speed tool alloys. G. S. Armstrong. *il Eng M* 46:401-15 *D* '13
- Steel improvement co.'s plant for heat-treating steel. *il Iron Tr R* 53:539-41 *S* 25 '13
- Tests for leaf springs and their treatment. E. F. Lake. *il Mach* 20:217-21 *N* '13
- Why does lag increase with the temperature from which cooling starts? H. M. Howe. *Am Inst Min E Bul* 75:479-85 *Mr* '13

Steel, Microscopic examination of. See Steel—Testing**Steel, Structural**

- Drilled holes in structural steel. *il Iron Age* 92:446 *Ag* 28 '13; *Ind Eng* 13:494 *N* '13
- Instruction for the mill inspection of structural steel. *Ry Age* 54:581-3 *Mr* 19 '13; Same. *Ry & Eng R* 53:305-6 *Mr* 29 '13
- Joint railway organization for the inspection of structural steel and steel rails. P. E. Stevens. *Eng N* 69:1190-1 *Je* 5 '13
- Protection of steel from corrosion. H. Williams. *il Eng M* 45:183-95 *My* '13
- Shop and mill inspection of structural steel. *Eng N* 69:1017-8 *My* 15 '13
- Structural steel fabrication at Rankin, Pa. *il Iron Age* 92:435-40 *Ag* 28 '13

See also Cars, Steel; Painting, Structural; Steel construction

Steel cables

- Efficiency of steel cable fastenings. *Eng Rec* 67:103 *Ja* 25 '13

Steel cars. See Cars, Steel**Steel castings**

- Adaptability of semi-steel mixtures. R. H. Probert. *il Foundry* 41:285-6 *Jl* '13
- Annealing of steel castings. E. F. Cone. *il Iron Age* 91:1049-54 *My* 1 '13
- Annealing steel castings. *Foundry* 41:96 *Mr* '13
- Cast-steel dome for the drainage shaft of the Hudson river siphon, Catskill aqueduct. *il diags Eng N* 70:696-701 *O* 9 '13; Same cond. *Eng Rec* 68:413-4 *O* 11 '13
- Cast-steel double body bolsters, platforms and end frames for steel cars. C. T. Westlake. *Am Soc M E J* 35:845-50 *My* '13; Same. *Ry & Eng R* 53:396-7 *Ap* 26 '13
- Core mixture for steel castings. *Foundry* 41:206 *My* '13
- Difficult steel casting hard to ship. *il Iron Age* 92:776-7 *O* 9 '13
- Dominion steel castings co., Hamilton, Ont.—Canadian plant for producing steel castings. *il plan Iron Tr R* 52:157-8 *Ja* 9 '13; Same. *Foundry* 41:67-8 *F* '13
- Electric refining furnace for cast steel. *Foundry* 41:94-5 *Mr* '13
- Electric steel for small castings. F. T. Snyder. *Iron Age* 92:932 *O* 23 '13; Same. *Foundry* 41:168-9 *N* '13
- European electric steel automobile castings. E. F. Lake. *il Iron Age* 91:768-70 *Mr* 27 '13
- Heat-treatment of carbon steel castings. J. H. Hall. *il Iron Tr R* 53:81-4 *Jl* 10 '13
- How an intricate casting was made. *il Foundry* 41:518 *D* '13
- Hubbard steel foundry co., Chicago—producing iron and steel rolls in the West. *il plan Iron Tr R* 52:1231-3 *My* 29 '13
- Lock gates for the Panama canal. *il plan Eng Rec* 67:228-31 *Mr* 1 '13
- Melting processes of the steel foundry. E. F. Cone. *il Iron Age* 91:826-30 *Ap* 3 '13
- Methods of preparing basic open-hearth steel for castings. H. F. Miller, jr. *Am Inst Min E Bul* 75:403-8 *Mr* '13; Same. *Iron Age* 91:714-5 *Mr* 20 '13; Same. *Foundry* 41:137-6 *Ap* '13
- Obscure defects in steel castings. E. F. Cone. *il Iron Age* 92:841-2 *O* 16 '13
- Practice of the Edgar Allen American manganese steel co. *il Iron Tr R* 52:1404-11 *Je* 19 '13; Excerpts. *Ind Eng* 13:492-3 *N* '13
- Roehling-Rodenhauser electric furnace for making steel for castings. C. H. Vom Baur. *il Iron Tr R* 52:153-6 *Ja* 9 '13; Same. *Foundry* 41:55-8 *F* '13

Steel castings—Continued.

- Semi-steel castings. *Ind Eng* 13:367-8 Ag '13
 Shock tests of cast steel. J. H. Hall. *il Am Inst Min E Bul* 79:1247-56 J '13; Discussion. 84:2904-35 D '13
 Some difficulties in pouring steel castings. R. A. Bull. *Foundry* 41:469-70 N '13
 Steel castings and the substitutes for them. H. Souther. *il Iron Age* 91:1234-5 My 22 '13
 Steel castings from the electric furnace. E. F. Cone. *il Iron Age* 91:1279-83 My 29 '13
 Steel castings without the use of manganese. E. F. Cone. *il Iron Age* 91:527-8 F 27 '13
 Story of some difficult steel castings. E. C. Jensen. *il diags Iron Age* 92:763-8 O 9 '13
 Typical specifications for steel castings. E. F. Cone. *Iron Age* 92:223-5 J1 31 '13

See also Steel ingots; Steel metallurgy

Steel construction

- Design of steel mill buildings. R. Fleming. *Eng Rec* 68:467-9, 491-3 O 25-N 1 '13
 Designing steel towers for wood tanks. E. B. La Salle. *Mach* 19:345-9, 453-6, 526-8, 612-7 Ja-Apr '13
 Dome of the Wisconsin capitol. *il plans Eng N* 70:389-95 Ag 28 '13
 Engineering standards and architectural requirements. *Eng Rec* 68:114 Ag 2 '13
 Erecting steel smokestack on a high roof. *Eng Rec* 67:584-5 My 24 '13
 Erection work on a heavy printing house. Hill publishing co. *il Eng N* 70:1298-9 D 25 '13
 Grandstand for the Brooklyn baseball club. *plans Eng Rec* 67:274-6 Mr 8 '13
 Guaranty trust company's new building, New York city. E. W. Stern. *il plans Eng N* 70:258-62 Ag 7 '13
 Hollow steel slab floor. *il diag Eng N* 69:1144-5 My 29 '13
 Long-span rolling-mill roof truss of Republic iron and steel co., Youngstown, O. *il plan Eng Rec* 68:164 Ag 9 '13
 Modern steel-tipple design. J. A. Garcia. *plans Eng N* 69:1316-7 Je 26 '13
 New specifications for structural steel work. *plans Eng Rec* 67:254, 264 Mr 8 '13
 Office building of the Consolidated gas co., New York. *il plans Eng N* 70:1275-83 D 25 '13
 Steel framework of St. Jean Baptiste church, N. Y. *il plans Eng Rec* 68:433-6 O 18 '13
 Steel in mine construction. C. Scholz. *Eng N* 69:1166-7 Je 5 '13; Same. *il diag Colliery* 34:30-2 Ag 13 '13
 Steelwork of the Broadway arsenal, Buffalo. *il plan Eng Rec* 67:301-2 Mr 15 '13
 Structural features of the Continental & commercial national bank, Chicago. *plans Eng N* 70:976-81 N 13 '13
 Structural steel in the Seamen's church institute building, N. Y. *plan Eng Rec* 67:162-3 F 8 '13
 Three radical innovations in a new steelwork specification. *Eng N* 69:364-6 F 20 '13
 Wind stresses in buildings. C. T. Morris. *Eng N* 69:862-3 Ap 24 '13
 Windbracing without diagonals for steel-frame office-buildings. R. Fleming. *Eng N* 69:492-6 Mr 13 '13
- See also* Bridges, Iron and steel; Cars, Steel; Concrete, Reinforced; Concrete construction; Corrosion and anti-corrosives; Girders; High buildings; Ships, Iron and steel; Steel, Structural; Strains and stresses; Towers, Steel; Water towers

Steel cutting

- Miscellaneous steel cutting at the Brooklyn navy yard. Ry & Eng R 53:466 My 3 '13

Miscellaneous steel cutting by gas in the U. S. navy. *Iron Age* 91:1149 My 8 '13

Steel for tools. See Tool steel**Steel hardening. See Steel, Hardening of****Steel industry and trade**

- Chairman Topping on iron and steel tariff; argument against Underwood bill. *Iron Age* 91:206-7, 227-8 Ja 16 '13

Charts showing fluctuations in iron and steel prices, 1895-1912. *Iron Tr R* 52:sup [1044] Ja 2 '13

Chicago warehouse for steel products; facilities of A. M. Castle & co. *il Iron Tr R* 52:978-89 Ap 24 '13

Conditions causing the adoption of extra prices for special sizes or qualities. J. L. Replogle. *Iron Age* 92:978-80 O 30 '13

Distribution of rolled products. *Iron Age* 92:456-8 Ag 28 '13

Effect of tariff on iron and steel. *Dom Eng* 65:177-8 N 8 '13

Export trade in iron and steel in 1912. *Iron Age* 91:262 Ja 23 '13

Extent of the steel industry. *Eng Rec* 68:269 S 6 '13

Extras—reason and necessity therefore. J. L. Replogle. *Iron Tr R* 53:785-6 O 30 '13

Finished steel in Canada. *Eng & Min J* 96:580 S 27 '13

Finished steel production in 1912. *Eng & Min J* 96:373 Ag 23 '13

Hearings before the ways and means committee. *Iron Tr R* 52:263-6 Ja 23 '13

Inside information on steel. *Eng & Min J* 95:1011 My 17 '13

Iron and steel in 1912. F. Hobart. *Eng & Min J* 95:80-2 Ja 11 '13

Iron and steel market. *See* monthly numbers of Metallurgical and chemical engineering
 Iron and steel prices for fifteen years, 1898-1912. *Iron Age* 91:32-3 Ja 2 '13

National iron and steel labor report; conditions existing in 1910. *Iron Age* 91:254-5 Ap 17 '13

New York warehouse (Milne & co.) for jobbing steel bars. *il plan Iron Tr R* 52:1022-4 My 1 '13

Noteworthy year in iron and steel. *Met & Chem Eng* 11:3-4 Ja '13

Number and character of electric steel furnaces in the United States compared with those in other countries. *Iron Age* 92:81 J1 16 '13

Our foreign iron and steel trade in 1912. *Iron Age* 91:300 Mr 6 '13

Pittsburgh iron and steel markets. B. E. V. Luty. *Eng & Min J* 95:83-4 Ja 11 '13

Plate, sheet and tin plate production in 1912. *Iron Age* 91:1400-1 Je 5 '13

Power of corporation feared in case tariff is reduced; hearings at Washington. *Iron Tr R* 52:216 Ja 16 '13

Production of finished iron and steel in 1912. *Iron Age* 92:352-5 Ag 14 '13

Production of structural shapes in United States in 1912. *Eng Rec* 67:616 My 31 '13

Production of structural shapes, wire rods and nails in 1912. *Iron Age* 91:1265-6 My 22 '13

Rolled steel and cast iron. *Met & Chem Eng* 11:229 My '13

Sheet bar situation. *Iron Tr R* 52:215 Ja 16 '13

Speculative factor. *Iron Age* 91:550-1 F 27 '13

Steel output in 1912 far beyond any record. *Iron Age* 91:1516-7 Je 19 '13

Steel production in the United States. *Eng & Min J* 95:1398 Je 28 '13

Steel trade and the tariff. *Iron Age* 92:788-9 O 9 '13

Steel works and rolling mills, 1909. *Mach* 19:568-9 Ag '13

Steel works output more, merchant pig iron less in September. *Iron Age* 92:800-1 O 9 '13

World's output of electric steel. *Iron Age* 91:304 Ja 20 '13

Year of tremendous activity in Chicago district. E. R. Boyer. *Iron Tr R* 52:94-6 Ja 2 '13

See also Iron industry; Rolling mills; Steel works; also United States Steel corporation

Steel ingots

Analysis of steel ingot manufacture; the influence of common defects on the quality of rails and structural material. B. Stoughton. *il Ry Age* 54:245-9 F 7 '13

Steel ingots—Continued.

Commercial production of sound steel ingots. E. Gathmann. *il diag Iron Tr R* 52:523-5 F 27 '13; Same. *Am Inst Min E Bul* 76:657-68 Ap '13

Common defects in ingot manufacture. B. Stoughton. *Eng M* 45:103-6 Ap '13

Further investigations for securing sound steel ingots. P. H. Dudley. *Eng Rec* 67:278 Mr 8 '13

Gathmann method of producing sound steel ingots. *Eng N* 70:687 O 9 '13

Iron and steel institute discusses sound steel. J. Horton. *Iron Tr R* 52:1185-6 My 22 '13

Method of producing sound ingots: process of Robert Hadfield and results obtained with it in France. *Met & Chem Eng* 11:79-81 F '13

Mil treatment and ductility tests of rail steel. P. H. Dudley. *il Iron Age* 91:539-41 F 27 '13

Piping and segregation of steel ingots and ductility-tests for open-hearth rails. P. H. Dudley. *plans Ry & Eng R* 53:160-3, 182-3 F 22-Mr 1 '13; Same. *Am Inst Min E Bul* 76:677-705 Ap '13; Same cond. *Ry Age* 54:391-2 F 28 '13; Same cond. *Iron Tr R* 52:857-60 Ap 10 '13

Plant for Hadfield method of producing sound steel ingots. R. A. Hadfield. *il diags Am Inst Min E Bul* 76:669-76 Ap '13

Prevention of piping in steel ingots. *Eng & Min J* 95:467-8 Mr 1 '13

Producing solid steel ingots. J. E. Stead. *Iron Age* 91:715 Mr 20 '13

Producing sound steel ingots by compression. L. E. Howard. *il plans Iron Tr R* 52:965-71 Ap 24 '13; Same. *Iron Age* 91:995-1000 Ap 24 '13; Same. *Met & Chem Eng* 11:351-4 Je '13

Production of solid steel ingots. B. Talbot. *il Am Inst Min E Bul* 76:625-30 Ap '13; Discussion. 76:631-18, 706-40 Ap '13

Production of steel ingots without defects; Hadfield, Talbot and thermit processes briefly reviewed. *Iron Tr R* 52:417-8 F 13 '13

Proportions of the mold to make sound ingots. E. Gathmann. *il diags Iron Age* 91:541-4 F 27 '13

Segregation and deoxidation and the efficiency of aluminium, silicon and titanium as deoxidizers. N. Petinot. *Met & Chem Eng* 11:231-2 My '13

Solution of the sound steel ingot problem. *Iron Tr R* 52:526-32 F 27 '13

Symposium on sound ingots. *plans Met & Chem Eng* 11:151-6 Mr '13

Symposium on sound steel ingots. *Iron Age* 91:538-49 F 27 '13

Talbot method for compression of ingots. *diag Iron Age* 91:1228-30 My 22 '13

Talbot method of producing sound steel ingots. *Iron Age* 91:1181-2 My 15 '13

Talbot-method solid ingots. *diags Iron Age* 91:546-9 F 27 '13

Talbot pipeless ingot. B. Talbot. *Eng M* 44:617-9 Ja '13

Thermit for improving steel ingots: revision and successful operation of a former method. H. Goldschmidt. *Eng M* 44:781-3 F '13

Use of anti-piping thermit in casting steel ingots. E. A. Beck. *diags Am Inst Min E Bul* 76:649-56 Ap '13; Same cond. *Iron Age* 91:545-6 F 27 '13

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Steel inspection. *See* Steel, Structural

Steel metallurgy

Changes in steel making processes. *Iron Tr R* 52:927 Ap 17 '13

Copper in steel—its influence on corrosion. D. M. Buck. *il Iron Tr R* 52:973-8 Ap 24 '13; Same cond. *Eng M* 45:419-21 Je '13

Efficiency of copper plating in preventing carbonization. *Mach* 19:381-2 Ja '13

Electric furnace in a steel casting foundry. *il Iron Tr R* 52:1399-1400 Je 19 '13

Electric furnace in the steel foundry. E. P. Humbert. *Iron Age* 92:1414-5 D 18 '13

Electric furnace methods of steel production. J. B. C. Kershaw. *il Iron Tr R* 52:197-203, 361-3 Ja 16, F 6 '13

Electric production of steel: from the early experiments of Siemens to the thirty-ton furnace of to-day. *il Sci Am* 109:88-9 Ag 2 '13

Electric steel. *Met & Chem Eng* 11:343-4 Je '13

Electric steel production and its expansion. *Iron Age* 91:1360-2 Je 5 '13

Epochal achievement in the electrical arts. *Sci Am* 109:82 Ag 2 '13

Exothermic steel. *Met & Chem Eng* 11:207-9 Ap '13

Ferro-titanium alloy in the manufacture of iron and steel. C. V. Slocum. *il Sci Am* 108:512 Je 7 '13

Frick electric furnace. *Iron Age* 92:670-1 S 25 '13

Frick electric steel induction furnace. *diags Iron Age* 92:744-7 O 2 '13; Same. *Sci Am* S 76:357-9 D 6 '13

Frick furnace for electric refining of steel. O. Frick. *Iron Age* 92:1113-4 N 13 '13

Fuel possibilities in steel making. W. Whigham. *Iron Age* 92:1056-9 N 6 '13; *Iron Tr R* 53:1097-1101 D 18 '13

Function of slag in electric steel-refining. R. Amberg. *Am Inst Min E Bul* 74:257-68 F '13

Future of the triplexing process. *Iron Tr R* 53:877-8 N 13 '13

Hints for the steel founder; paper read at Am. foundrymen's assn. Buffalo. S. R. Robinson. *Foundry* 41:53-4 F '13

Influence of silicon on open-hearth ingots. *il Iron Tr R* 52:804-5 Ap 3 '13

Influence of titanium on Bessemer steel. *Iron Tr R* 52:801-2 Ap 3 '13

Iron and steel committee of Am. Inst. M. E. meeting. Oct., 1913; papers. *Iron Age* 92:900-5, 936-8 O 23 '13

Making steel in a Stock, oil-fired converter. *il plan Iron Tr R* 52:97-100 Ja 2 '13

Manufacture of crucible steel. J. H. Hall. *il Iron Tr R* 52:791-8, 849-56 Ap 3-10 '13

Manufacture of open-hearth steel. K. Seaver. *il plan Iron Tr R* 52:1126-30, 1171-6, 1239-41 My 15-29; 1299-1302, 1355-7 Je 5-12 '13

Manufacturing armor-piercing shells in Spain. *il Iron Tr R* 53:512-4 S 25 '13

Metallurgy of iron and steel. B. Stoughton. *Eng & Min J* 95:98-103 Ja 17 '13

Next improvement in steel making; killing in molds advocated. G. Auchy. *Iron Age* 91:239-40 Ja 23 '13

Progress in the metallurgy of iron and steel. B. Stoughton. *Iron Age* 91:12-4 Ja 2 '13

Safety in travel as affected by the steel rail. *il Sci Am* 108:516-7 Je 7 '13

Status of the electric steel furnace. W. Sykes. *Iron Age* 92:856-7 O 16 '13

Steel better and cheaper. *Automobile* 28:982 My 8 '13

Study of slag enclosures in steel. *Iron Tr R* 52:418-9 F 13 '13

Suggestion for vacuum electric steel. F. S. Adams. *Iron Age* 91:671 Mr 13 '13

Titanium and silicon in rail steel. *Eng Rec* 67:390-1 Ap 5 '13

Titanium as used in steel making. E. F. Lake. *Met & Chem Eng* 11:144-6 Mr '13

Triplexing in steel works vs. Bessemer duplexing. F. A. Wilmot. *Iron Age* 92:819-20 O 9 '13

Use of cold coke-oven gas in steel production. *plan Iron Age* 91:1014-5 Ap 24 '13

Use of titanium. *Foundry* 41:150-1 Ap '13

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Steel molds

German use of steel ingot molds. *Iron Age* 92:1214-5 N 27 '13

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Steel protection. *See* Car painting; Metal protection; Painting, Structural

Steel tape

Steel-tape repairing in the field. F. A. Glass.
Eng & Min J 96:1023 N 29 '13

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Accidents in iron and steel mills: comparison for the United States and Germany. Iron Age 92:425 Ag 21 '13

Descriptive sketch of iron and steel plant of the Algoma steel corporation at Sault Ste. Marie, Ont. R. D. Williams. Iron Tr R 53:101-4 S 4 '13

Eight-hour versus twelve-hour shifts: economies effected through shorter hours. R. A. Bull. Eng M 44:589-601 Ja '13

Electrically driven sheet mill of the Apollo steel company, Apollo, Pa. Iron Age 91:1529-32 Je 26 '13

Extensive building plans of Bethlehem steel co. Iron Tr R 52:164-5 Ja 9 '13

Gas engines in blast furnaces and steel plants. H. J. Freyn. Iron Tr R 52:1242-8 My 29 '13; Same cond. Iron Age 91:1299-1302 My 29 '13

How a German iron and steel plant is equipped: the Rheinische stahlwerke, A. Schwartz. Iron Tr R 53:673-7 O 16 '13

How to prevent blindness among your employees. Iron Foundry 41:382-4 S '13; Same. Iron Tr R 53:414-6 S 4 '13; Same. Ind Eng 13:427-9 O '13

Iron and steel output cut down by floods. Iron Age 91:861-4 Ap 3 '13

Jones & Laughlin Alliquippa (Pa.) works. Iron Age 91:23-9 Ja 2 '13

Labor conditions in steel industry; letter from J. A. Fitch. Iron Tr R 52:640-1 Mr 13 '13

Losses in steel works operations. P. Longmuir and W. H. Robinson. Iron Tr R 52:310 Ja 30 '13

Manufacture of open-hearth steel. K. Seaver. Iron Tr R 52:1126-30, 1171-6, 1233-41, 1299-1302, 1355-7 My 15-Je 12 '13

Minnesota steel company's plant, Duluth. Iron Age 92:603-5 S 18 '13

New iron and steel works construction. Iron Age 91:105, 122-7 Ja 2 '13

New pickling and galvanizing plant at Niles, O. Iron Age 92:232-4 Jl 31 '13

Open-hearth furnaces at Midland, Pa. Iron Tr R 52:1025-32 N 6 '13

Pittsburgh crucible steel co.'s new plant. Iron Tr R 53:821-31 N 6 '13

Power machinery of the American steel industry. R. L. Streeter. Iron Age 44:16-35, 204-21, 362-84, 494-510 O '12-Ja '13

Preventing accidents in melting departments. Iron Tr R 52:693 Mr 20 '13

Progress on Minnesota steel co. plant, Spirit Lake, Eng & Min J 96:601 S 27 '13

Regenerative gas-fired push furnace. F. Siemens. plan Eng M 44:624-6 Ja '13

Shop and mill inspection of structural steel. Eng N 69:1017-8 My 15 '13

Situation in the flooded districts. Iron Age 91:917-9 Ap 10 '13

Special machinery at the Youngstown, Ohio plant of the Trussed concrete steel company. Iron Age 92:1377-81 D 18 '13

Structural steel fabrication at Rankin, Pa. Iron Age 92:435-40 Ag 28 '13

Trumbull steel co.'s plant for manufacturing sheet and tin plate, Warren, O. Iron Age 92:556-8 S 11 '13; Iron Tr R 53:445-9 S 11 '13

Types of motors for steel mill auxiliaries. B. R. Shover and E. J. Cheney. Iron Tr R 52:251-3 Ja 23 '13

United States steel corporation (Canadian plant at Sandwich, map Iron Tr R 52:171 Ja 9 '13

Visit to the Becker steel works, Germany. Iron Age 92:350-1 Ag 14 '13

Youngstown sheet & tube company: the open-hearth plant, blooming mill and other details. Iron Age 92:335-41 Ag 14 '13; Iron Tr R 53:289-98 Ag 14 '13

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Stefánsson, Vilhjálmr

Arctic exploration and the new Stefánsson expedition. R. E. Peary. map Iron Tr R 53:276 My 3 '13

Canadian arctic expedition. Sci Am 108:240 Mr 15 '13

Plans of the Stefánsson expedition. C. Wissler. Sci Am 8 75:276-7 My 3 '13

Steinmetz, Charles Proteus, 1865-

Steinmetz and electrical progress. D. S. Martin. por Sci Am 8 76:28 Jl 12 '13

Stellite

Stellite as a cutting tool. D. T. Hamilton. Iron Tr R 53:297-8 D 13 '13

Stephens family

Printers of note—the Stephens, W. C. Bleloch. Inland Ptr 51:524-5 Jl '13

Stereoaugraph

Stereophotographic surveying. O. Lemberger. Iron Age 69:609-12 Mr 27 '13

Stereocomparator

Stereophotographic surveying. O. Lemberger. Iron Age 69:605-9 Mr 27 '13

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Curiosities of binocular vision: stereoscopic and other effects. F. Campbell. Iron Tr R 53:122-3 Ag 23 '13

Evolution of the modern stereoscope. A. Lockett. diags Sci Am 8 76:276-9 N 1 '13

Stereotyping

Electrotyping and stereotyping. C. S. Partidge. See monthly numbers of the Inland printer

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Mechanical equipment of Stock yards inn. plans Dom Eng 62:332-9 Ja 11 '13

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Chain-grate stoker which returns its ashes. diag Eng N 69:1143 My 29 '13

Chain grate stokers. W. M. Faber. diag Ind Eng 12:433-4 N '13

Electric signal method of firing navy boilers. Iron Tr R 53:396 N 22 '13

Gee locomotive stoker. Iron Tr R 53:115-7 Mr '13; Same. Ry Age 51:486-8 Mr 14 '13

Mechanical stokers from operating standpoint. Ry Age 54:1300-12 Je 13 '13

On the firing line: mechanical stoking of locomotives. Ry & Eng R 53:147 F 15 '13

Reclaiming fuel from chain-grate stokers. E. Brown. Power 38:587 O 21 '13

Report of committee of Am. railway master mechanics' assn. on mechanical stokers. Ry & Eng R 53:556 Je 14 '13

Riley underfeed stoker. Iron Tr R 53:117 F 13 '13; Ind Eng 13: 123-5 Mr '13; Power 37:483-5 Ap 8 '13

Smoke prevention and the mechanical stoker. D. F. Crawford. Ry Age 55:25 Jl 4 '13

Standard locomotive stoker. Iron Tr R 53:647-9 O 10 '13; Ry Age (Mech ed) 87:621-4 N '13

Standardization of boiler-stoker installations. J. G. Worker. Power 38:509 O 7 '13

Stoker vs. powdered fuel for locomotives. C. F. Street. Ry Age 55:136-7 Jl 25 '13

Stoking the locomotive by machine. Iron Tr R 53:445 D 13 '13

Underfeed stokers. Iron Tr R 53:369 F 15 '13

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Stone crushing plants

Ballast crushing plant of the El Paso & Southwestern. *il plan Ry Age* 54:1573-4 Je 20 '13

Stone crushing and screening, Fairmount, Ill. K. E. Casparis. *il Eng N* 69:112-6 Ja 16 '13

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Production of stone dust in collieries. *il Colliery* 34:90 S '13

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Advantages of thin-plate storage batteries. *Elec W* 61:437-8 Mr 1 '13

Automobile storage batteries: care and maintenance. *Automobile* 28:758-9 Ap 3 '13

Battery action in charge and discharge. *Automobile* 29:747 O 23 '13

Battery points for the careful owner. J. S. Skinner. *Automobile* 29:744-5 O 23 '13

Chemical action in storage batteries. C. S. Cole. *Automobile* 29:1206-7 D 25 '13

Comparison of lead-sulphuric and Edison types of storage battery. E. Oster. *il Power* 38:716-20 N 18 '13

Dry storage battery of Cook railway signal company, Denver, Col. *il Elec W* 61:66 Ja 4 '13

Edison storage battery. H. H. Smith. *Eng M* 45:91-4 Ap '13

Hydro-pneumatic accumulator. *il Am Eng* 87:48 Ja '13

Installation and care of storage batteries. H. M. Nichols. *Power* 38:88-90, 125-7 Jl 15-22 '13; *Same. Sci Am S* 76:130-1 Ag 30 '13

Marine uses of electric storage batteries. E. L. Reynolds. *Int Marine Eng* 18:157 Ap '13

1913 vehicle batteries. *Automobile* 28:42-3 Ja 2 '13

Overhauling a railway storage battery. B. Dawson. *diag Power* 38:821-2 D 9 '13

Recent improvements in the storage battery. *il Sci Am* 108:247 Mr 15 '13

Reconstruction of a storage-battery plant, St. Louis. *diag Elec W* 61:1179-80 My 31 '13

Resuscitating a dead storage battery. *Automobile* 28:949 My 1 '13

Specialties in the storage battery field. *il Automobile* 29:779-81 O 23 '13

Storage battery. J. A. Randolph. *plan Power* 37:48-9, 81-3 Ja 14-21 '13

Storage-battery control by counter-emf cells. *il diag Elec W* 62:1267-8 D 20 '13

Storage battery industry. L. Lyndon. *Elec W* 61:21-2 Ja 4 '13

Storage battery operation in electrics. G. Taylor. *Automobile* 29:746-7 O 23 '13

Thin plate is latest battery development. *diags Automobile* 29:742-4 O 23 '13

Tubes and pockets of the Edison battery. *il Automobile* 29:782-5 O 23 '13

See also Electric batteries

Charging

Charging a battery. *Automobile* 28:40-1 Ja 2 '13

Methods of charging storage batteries. *Elec W* 62:41-2 Jl 5 '13

Motor-generators and rectifiers. *il Automobile* 28:34-6 Ja 2 '13

Rheostats for battery charging. *il Automobile* 28:37-9 Ja 2 '13

Storage battery charging: a vibrating rectifier changing alternate current of standard voltage to low-voltage direct current for automobile lighting. Q. A. Brackett. *il Eng M* 44:774-6 F '13

Universal-unit battery-charging panels. *il Elec W* 62:1177 D 6 '13

Storage battery locomotive. *See* Electric locomotives**Storage of coal.** *See* Coal storage**Storage systems**

Relation of storage to plant capacity. *Iron Age* 91:176-7 Ja 9 '13

Storage system for construction plant: inspection and maintenance of wood and steel derricks, hoisting engines, ropes, slings and connections. *Eng Rec* 67:431-2 Ap 19 '13

See also Stores system

Stores. *See* Department stores; Show cases**Stores, Cooperative.** *See* Cooperation**Stores system**

Abstracts of papers at 10th annual convention of Railway storekeepers' assn., Chicago, 1913. *Ry Age* 54:1134-45 My 23 '13; *Ry Age (Mech ed)* 87:297-304 Je '13

Arrangement and operation of store rooms. W. B. Laine. *il Ind Eng* 13:495-500 D '13 (to be cont)

Handling supplies and manufactured parts: how machine standards were developed by Sulzer brothers, Winterthur, Switzerland. *il Iron Age* 92:1265-70 D 4 '13

Holley carburetor co.'s system in storing patterns. *diags Automobile* 29:370-1 Ag 28 '13

Simplified stock system. *Automobile* 29:26-7 Jl 3 '13

Storeroom system for a large plant. *Ind Eng* 13:342-6 Ag '13

10th annual convention of Railway storekeepers' assn., Chicago, 1913. *Ry & Eng R* 53:482-3, 487-8 My 24 '13

Storms

See also Thunderstorms; Tornadoes

Stoves

Latter-day stove shop; I. A. Sheppard & co.'s plant, Philadelphia. E. C. Kreutzberg. *il plan Foundry* 41:423-33 O '13

New stove foundry at Chicago; plant of Cribben & Sexton co. *il Iron Age* 91:74-6 Ja 2 '13

See also Electric cookers

Strains and stresses

Analysis of crankshaft stresses. K. W. Najder. *Mach* 19:866-8 Jl '13

Analysis of steel towers: determination of action of wind loads and design of tower bents. I. Delson. *Eng Rec* 68:302-3 S 13 '13

Analyzing strength of cylinder head bolts. J. H. Rodgers. *diags Mach* 20:56 S '13

Bending moments in continuous reinforced-concrete beams. S. E. Thompson. *Eng Rec* 67:639-40 Je 7 '13

Calculation of docks and bulkhead walls. *diags Eng Rec* 68:325-7 S 20 '13

Calculation of the distribution of stresses in rotating discs of variable width. T. Pöschl. *Am Soc M E J* 35:714-7 Ap '13

Deflection of angle irons. W. L. Cathcart. *Mach* 19:636 Ap '13

Designing faceplate jaws and screws for a heavy lathe. W. G. Dunkley. *diags Mach* 19:766-8 Je '13

Designing steel towers for wood tanks. E. B. La Salle. *Mach* 19:345-9, 453-6, 526-8, 612-7 Ja-Ap '13

Determining shaft diameters. W. G. Dunkley. *Mach* 19:948-9 Ag '13

Distribution of deformations in stressed metal. C. Fremont. *Am Soc M E J* 35:1297-1301 Ag '13

Distribution of stress in a cement briquette. E. G. Coker. *il Sci Am S* 75:388-9 Je 21 '13

Excerpts from foreign articles on strength of materials. *Am Soc M E J* 35:339-43 F '13

Experiments on moving loads on highway bridges. *Eng Rec* 68:165-6 Ag 9 '13

Strains and stresses—Continued.

- General method for drawing influence lines for stress in simple trusses. M. A. Howe. Eng N 69:1227-31 Je 12 '13
- Graphical analysis of double-reinforced-concrete sections. S. Klein. Eng Rec 68:252 Ag 30 '13
- Graphical method of dividing neutral axis in concrete arch design. T. A. Smith. Eng N 70:611 S 25 '13
- Increase of bore of high-speed wheels by centrifugal stresses; abstract and discussion of paper by S. A. Moss. Am Soc M E J 35:623-8 Ap '13
- Increase of bore of wheels by centrifugal stresses. diag Mach 19:520-3 Mr '13
- Kinetic effects of crowds; the forces due to movements of live load. C. J. Tilden. il Sci Am S 76:172-5 S 13 '13
- Maximum column stresses. Eng Rec 67:44 Ja 11 '13
- Measurement of actual stresses. A. R. Lord. Concrete Cem 3:15-6 Jl '13
- New strain-gage for live-load stresses. il Eng N 70:701 O 9 '13
- Optical determination of stresses. Eng Rec 67:30-1 Ja 11 '13
- Reinforced concrete wall footings and column footings. A. N. Talbot. Ill U Eng Exp Sta Bul 67:1-114 '13
- Strains in flywheels. J. E. Terman. Power 38:651-2 N 4 '13
- Strength of C-shaped cast-iron frames. A. L. Jenkins. diags Am Mach 38:815-7 My 15 '13
- Strength of outstanding flanges in beams and columns. R. J. Roark. Eng Rec 68:722-3 D 27 '13
- Strength of wire rope drums. R. H. Crevoisie. Mach 19:580 Ap '13
- Stress analysis of circular tubes. B. Hauke-ild. Eng Rec 67:663-72; 68:674-6 Je 14, D 13 '13
- Stress coefficients for roof trusses; with data sheet supplement. C. E. Shirmer. Mach 20:23-4 S '13
- Stresses due to bending in lap riveted boiler seams. E. Dailber. Am Soc M E J 35:905-6 My '13
- Stresses in an A-frame for a crane runway; analysis of primary stresses and discussion of stresses in lattice bars. H. Gwin-ner. diag Mach 19:37-8 S '12
- Tests of reinforced concrete buildings under load. A. N. Talbot and W. A. Slater. il Ill U Eng Exp Sta Bul 61:5-104 '13
- Tests of reinforced-concrete slabs under concentrated loading. Eng Rec 68:154-6 Ag 9 '13
- Tests of reinforced-concrete wall and column footings. Eng Rec 68:126-8 Ag 2 '13
- Three radical innovations in a new steel-work specification. Eng N 69:364-6 F 20 '13
- Three-segment column-formula; increasing column stresses. N. R. McLure. Eng N 69:586 Mr 20 '13
- Unit stresses for timber. A. T. North; H. D. Dewell. Eng N 70:179-81 Jl 24 '13
- Unit stresses in timber. A. T. North. Eng N 70:426-7 Ag 28 '13
- What is a proper safe unit stress for timber? Eng N 69:1335 Je 26 '13

See also Arches; Bridges—Load; Building; Elasticity; Extensometers; Girders; Graphic statics; Mechanics; Neutral axis; Strength of materials; Trusses; Wind pressure

Stray currents

- Stray electric currents. C. J. Norwood. Colliery 33:356-7 F '13

See also Electrolytic corrosion

- Stray losses.** *See* Electric apparatus—Losses; Electric machinery—Losses; Electric motors—Losses

Stream flow

- Effect of proposed storage reservoirs on stream flow and water power on the lower Chippewa river. Wis. C. B. Stewart. map Eng N 70:246-8 Ag 7 '13
- Effect of recent flood on New York streams. R. E. Horton. il Eng Rec 67:399-402 Ap 12 '13

- Stream-flow formulæ and the Ohio flood. Eng Rec 68:363 S 27 '13

See also Floods; Stream measurement; Water flow

Stream measurement

- Artificial controls for stream gaging stations. C. R. Adams. il Eng N 69:1308-11 Je 26 '13
- Establishing ex-post-facto gage heights. C. F. Brown. il map Eng N 69:1120-3 My 29 '13
- Flood gagings at Columbus, Ohio. R. H. Simpson. Eng Rec 67:592 My 24 '13
- Measuring the flow of a stream. R. H. Byrd. il Sci Am 108:268-9 Mr 22 '13
- Methods of estimating stream flow when streams are frozen. W. G. Hoyt. Eng N 69:725-7 Ap 10 '13
- Notes on stream gaging stations. C. K. Fox. Eng N 69:1080 My 22 '13
- Precipitation and runoff, Ishikari river, Japan, with special relation to ice conditions. B. Okazaki. Eng N 70:850-2 O 30 '13
- Snow surveys for predicting stream flows. J. C. Alter. il Eng N 69:1110-3 My 29 '13
- Stream flow gagings under anchor ice conditions. C. W. Smith. Eng N 69:1276-7 Je 19 '13
- Stream gaging stations as component parts of water-power and other hydraulic works. J. C. Hoyt. Eng N 69:834-5 Ap 24 '13

See also Water flow

- Stream pollution.** *See* Water pollution

Street accidents

- Accident talks to the children of Brooklyn. il Elec Ry 42:1222-6 D 13 '13
- Motor omnibus accidents in London. Eng. H. R. Wilson. Eng N 70:550-2 S 18 '13
- See also* Street railroads—Accidents

Street car advertising

- Street car advertising by railway companies. Elec Ry J 42:71 Jl 12 '13

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- Articulated street car, Boston. il Eng N 69:910-1 My 1 '13
- Birmingham (Ala.) side-entrance car for white and colored passengers. il plan Elec Ry J 41:766-7 Ap 26 '13
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- Car design. Elec Ry J 41:964 My 31 '13
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- Center-entrance cars for Butte, Mont. il plan Elec Ry J 42:274 Ag 16 '13
- Chicago City railway's new cars. diags Elec Ry J 42:1281-2 D 20 '13
- City car window-glass test. Elec Ry J 41:78 Ja 11 '13
- Cleveland tests on the illumination of cars. Elec Ry J 42:180-1 Ag 2 '13
- Commercial stage of the double deck. Elec Ry J 41:996-7 Je 7 '13
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- Design of city cars. il Elec Ry J 42:561-70 O 4 '13
- Double-deck car for Washington. plans Elec Ry J 41:430 Mr 8 '13
- Double-deck cars for Pittsburgh. il plans Elec Ry J 41:958-62 My 31 '13
- Double-deck prepayment cars at Aberdeen, Scotland. il Elec Ry J 41:385 Mr 1 '13
- Effective shop equipment for reducing maintenance of equipment. G. A. Mills. Elec Ry J 41:816-8 My 3 '13
- Electric railway construction in Paris. il plans Elec Ry J 42:648-9 O 4 '13
- Fender and wheel-guard tests in Vancouver. Elec Ry J 42:968-9 N 1 '13
- Forthcoming train operation on Montreal street railway system. plan Elec Ry J 42:939 O 25 '13
- Gas-electric cars for London county council tramways. il Elec Ry J 42:36 Jl 5 '13
- Gasoline surface cars in India. il Elec Ry J 41:427 Mr 8 '13
- Hearings before Mass. railroad commission on heating vestibules and air-brake equipment. Elec Ry J 41:819 My 3 '13
- Height of car step; opinion of New Jersey commission. Elec Ry J 42:1037 N 8 '13

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- Improved type of articulated car. *il Elec Ry J 41:583-5 Mr 29 '13*
- Increasing the efficiency and reliability of old equipment. *Elec Ry J 41:407 Mr 8 '13*
- Larger car designed for the new subway. *il Sci Am 109:262 O 4 '13*
- Latest features of Montreal cars. *il diags Elec Ry J 42:1132-4 N 29 '13*
- Municipal car in San Francisco. *il Elec Ry J 41:896 My 17 '13*
- Near-side cars for Atlantic City. *il Elec Ry J 42:940 O 25 '13*
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- New pay-within car for the Michigan united traction company. *il Elec Ry J 41:122-3 Ja 18 '13*
- New York city brake order. *J. N. Dodd. Elec Ry J 42:414-9 S 13 '13*
- Operation of trailers in connection with peak load city service in Cleveland. *G. L. Radcliffe. Elec Ry J 41:422-3 Mr 8 '13*
- Opinion and order on New York car step. *Elec Ry J 41:414 Mr 8 '13*
- Pneumatic gong ringer for Kansas City cars. *plan Elec Ry J 41:596 Mr 29 '13*
- Progress in car design during 1912. *Elec Ry J 41:4-5 Ja 4 '13*
- Recommendations for San Francisco cars. *Elec Ry J 41:256-7 F 8 '13*
- Rules against smoking on street cars. *Eng N 69:582-3 Mr 20 '13*
- St. Louis center-entrance motor car. *il Elec Ry J 42:1062 N 15 '13*
- Sanitary car strap with advertising feature, patented by John F. Newton, jr. *il Elec Ry J 41:259-60 F 8 '13*
- Single-deck and double-deck prepayment cars for Vienna. *il plans Elec Ry J 42:182-4 Ag 2 '13*
- Steam turbine street cars for Long Island. *Sci Am 109:183 S 6 '13*
- Third avenue railway converting prepayment cars to non-bulkhead type. *diag Elec Ry J 42:1148 N 29 '13*
- Truckless and single-truck center-entrance cars. *il plan Elec Ry J 42:1025-6 N 8 '13*
- See also* Car cleaning; Car fenders; Car painting; Car trucks; Car washing; Car wheels; Cars; Electric railroads—Rolling stock; Street railroads

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- Automobile truck for refuse and street sweepings. *il Munic Eng 44:119-21 F '13*
- Care of streets in Chicago: abstract of a report on cleaning and repairing streets. *Eng Rec 68:558-9 N 15 '13*
- Cleaning capital streets. *J. W. Paxton. il Munic Eng 45:259-61 S '13*
- Cleaning streets in St. Louis, Mo. *J. C. Travilla. Munic Eng 44:439 My '13*
- Cleaning streets in Washington. *D. C. J. W. Paxton. Eng Rec 68:353-4 S 27 '13*
- Comparative street cleaning costs. *T. M. Hurlburt. Munic Eng 45:151 N '13*
- Cost system for street cleaning in Washington. *J. W. Paxton. Eng Rec 68:296-7 S 13 '13*
- Estimating the cost of garbage and refuse collection and haulage in Chicago. *Eng N 69:106-7 Ja 16 '13*
- Five job municipal vehicle. *il Automobile 29:276-8 Ag 14 '13*
- Motor driven street sweeper used in Oakland, Cal. *Munic Eng 45:167-9 Ag '13*
- Motor sweepers save 12 to 60 per cent. *il Automobile 28:1064-5 My 22 '13*
- Municipal versus contract street cleaning in Washington. *J. W. Paxton. Eng Rec 68:296 S 13 '13*
- Recent progress in methods and character of street cleaning. *S. Whinery. Eng N 70:570 S 18 '13; Eng Rec 68:295 S 13 '13*
- Squeeze in Berlin. *il Munic Eng 45:173-4 Ag '13*
- Street and alley cleaning in Chicago. *F. W. Solen. Munic Eng 44:162-3 F '13*
- Street cleaning and garbage collection efficiency studies of the Chicago civil service commission. *Eng N 69:123 Ja 16 '13*
- Street cleaning and garbage collection methods in Chicago. *Eng Rec 67:24-6 Ja 4 '13*
- Street cleaning costs at Spokane, Wash. in 1912. *S. A. Levington. Eng N 69:404-5 F 27 '13*
- Street cleaning department of Baltimore, Md. *S. S. Scott. il Munic Eng 45:340-2 O '13*
- Street cleaning efficiency standards for Chicago. *F. H. Cenfild and A. B. Segur. map Eng N 69:402-4 F 27 '13*
- Street cleaning in New York in 1912. *Eng Rec 68:427 O 18 '13*
- Street cleaning without contractors in Washington, D. C. *Eng N 70:681-3 O 2 '13*
- Vacuum road cleaning. *Eng Rec 67:574 My 24 '13*
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- Cost of municipal electric lighting at Chicago. *R. Palmer. Eng N 70:668 O 2 '13*
- Cost of street lighting in Chicago. *Elec W 62:290 Ag 9 '13*
- Electrical service in European cities. *L. Bell. Elec W 62:637-8 S 27 '13*
- Elements of cost in street lighting. *Elec W 62:1065-6 N 22 '13*
- Hiawatha, Kan.—ornamental street lighting. *H. S. Woods. il Elec W 62:1116-7 N 29 '13*
- Investigation of costs of street lighting in Milwaukee, made by the Railroad commission of Wisconsin. *Elec W 62:632 S 27 '13*
- London's transportation and lighting. *L. Bell. Elec W 62:366-7 Ag 23 '13*
- Luminous-arc installations in Boston, Cambridge, and Lynn, Mass. *il Elec W 62:469-72 S 6 '13*
- Magnetite-arc lamps at Owatonna, Minn. *il Elec W 62:645 S 27 '13*
- Ornamental lighting in residential districts: series tungsten system covering all streets of Champaign, Ill. *J. R. Cravath. il Elec W 62:1264-6 D 20 '13*
- Ornamental lights of Billings, Mont. *J. N. Edy. il Munic Eng 44:15-6 Ja '13*
- Plan for future street lighting of Chicago. *map Elec W 61:785-6 Ap 12 '13*
- Purpose and methods of street lighting. *K. G. Rennie. Munic Eng 44:259-62 Mr '13*
- Relative merits of the various types of electric arc and incandescent lamps for lighting urban and suburban streets. *H. C. H. Lasker. Stevens Ind 30:37-56 Ja '13*
- Standard specifications for street lighting. *Eng Rec 67:595 My 31 '13*
- Street lighting and fixtures of New York city. *Elec W 61:712-3 Ap 5 '13*
- Street lighting in Fort Wayne, Ind. *il Elec W 62:594 S 20 '13*
- Street lighting in St. Joseph, Mo. *il Munic Eng 41:51-2 Ja '13*
- Street lighting with tungsten lamps. *il Munic Eng 45:523-7 D '13*
- Study of street lighting in Manchester. *Elec W 61:810-1 Ap 19 '13*
- White-way lighting. *Elec W 61:1069-70 My 24 '13*
- Wisconsin commission shows Milwaukee that central-station energy is cheapest. *Elec W 62:577 S 20 '13*
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- Construction of concrete lighting standards at Eldorado, Kan. *il Elec W 62:1331-2 D 27 '13*
- New lamps on Dearborn street, Chicago. *il Elec W 61:833-4 Ap 19 '13*
- Ornamental concrete lamp posts. *H. G. Hall. il plan Concrete Cem 2:226-7 My '13*
- Ornamental lighting in Waterloo, Iowa. *C. A. Roby. Munic Eng 44:41-2 Ja '13*

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Standard lamp post adopted in Chicago, Ill. J. C. Schmiedwind, II Munic Eng 44:361-2 Ap '13
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Indianapolis differences placed before commission, Elec Ry J 42:1119-50 N 29 '13

Indianapolis employees close their case, Elec Ry J 42:1348 D 27 '13

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Plan for co-operative buying in Philadelphia, Elec Ry J 41:855-6 My 10 '13

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Relations that should exist between railway employees and the supervisory force, N. W. Bolen, Elec Ry J 41:1153-4 Je 28 '13

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Review of the Statesbury management in Philadelphia, Elec Ry J 42:1347-8 D 27 '13

Securing lower purchase prices for employees, Elec Ry J 41:838-9 My 10 '13

Selection and instruction of trainmen, Elec Ry J 41:812 My 3 '13

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Terms of settlement of Buffalo International railway strike, Elec Ry J 41:730 Ap 19 '13

Terms of settlement of Cincinnati strike, Elec Ry J 41:939 My 24 '13

Welfare work on Brooklyn rapid transit system, H. A. Bullock, Elec Ry J 42:285-7 O 16 '13

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Discussion on rates and fares, W: J. Clark, Elec Ry J 41:192-5 F 1 '13

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Fare collecting and recording in Buffalo, Elec Ry J 42:342 Ag 30 '13

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Joint meeting of the Accountants' and Transportation & traffic associations discusses fares and transfers and express and freight traffic, Elec Ry J 42:798-800 O 16 '13

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- Prepayment zone system inaugurated at Leicester. Elec Ry J 41:720 Ap 19 '13
- Proceedings of 4th annual midyear conference of Am. Elec. Ry. Assn., 1913. Elec Ry J 41:184-196 F 1 '13
- Profitable limit of five-cent street-railway fare. H: G. Bradlee. Eng N 69:214-5 Ja 30 '13
- Providence, R. I.—Rooke system of automatic fare collection. Il Elec Ry J 41:643 Ap 5 '13
- Report of experts on the result of operation at reduced fare in Toledo. Elec Ry J 41:263 F 8 '13
- When a reduced rate of fare should not be made. Elec Ry J 41:532 Mr 22 '13
- Wisconsin Supreme court decision in Milwaukee fare case. Elec Ry J 41:1081 Je 14 '13

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- Annual reports. Elec Ry J 41:167-9 Ja 25 '13
- Arbitration of operating expense charges in Cleveland. Elec Ry J 41:925-9, 971-3, 1070-6 My 24-31, Je 14 '13
- Arbitration result in Cleveland. Elec Ry J 41:1134-5 Je 28 '13
- Brooklyn rapid transit. Ry Age 55:485 S 19 '13
- Decision of Board of arbitration in the Cleveland case; text. Elec Ry J 41:1159-62 Je 28 '13
- Economics of the Cleveland railway situation as developed in the 1913 arbitration decision. C. N. Duffy. Elec Ry J 42:770-3 O 15 '13
- Electric railway situation. Elec Ry J 41:8-9 Ja 4 '13
- Estimates based on proposed merger of Chicago surface lines. Elec Ry J 41:1032 Je 7 '13
- Final report on San Francisco. Elec Ry J 41:814-52 My 10 '13
- Financial aspects of the relief of congestion by the construction of subways and viaducts. C. S. Sergeant. Elec Ry J 42:813-4 O 16 '13
- 4th annual report of Board of supervising engineers, Chicago traction, for year ended Jan. 31, 1911. Elec Ry J 41:809-11 My 3 '13
- Investment in electric railway securities. A. M. Harris. Eng M 46:421-3 D '13
- Issues in Cleveland. Elec Ry J 41:957 My 31 '13
- Kansas City receivers' report to the U. S. court. Elec Ry J 42:38 Jl 5 '13
- Present tendency of street railway operating expenses. J. J. Burleigh. Elec Ry J 41:187-9 F 1 '13
- Proceedings of 4th annual midyear conference of Am. Elec. Ry. Assn., 1913. Elec Ry J 41:184-196 F 1 '13
- Profitable limit of five-cent street-railway fare. H: G. Bradlee. Eng N 69:214-5 Ja 30 '13
- Proper recognition for "going value." Elec Ry J 41:533 Mr 22 '13
- Report on street railway system of Kansas City. Elec Ry J 41:716-20 Ap 19 '13
- San Francisco municipal railway. map Elec Ry J 42:672-3, 686-8 O 11 '13

See also Street railroads—Fares; Street railroads—Franchises; Street railroads—Valuation

Franchises

- Arbitration of operating expense charges in Cleveland. Elec Ry J 41:925-9, 971-3, 1070-6 My 24-31, Je 14 '13
- Cleveland franchise is not a solution. Elec Ry J 42:918-9 O 25 '13
- Decision in Des Moines franchise case. Elec Ry J 41:650 Ap 5 '13
- Economics of the Cleveland railway situation as developed in the 1913 arbitration decision. C. N. Duffy. Elec Ry J 42:770-3 O 15 '13
- Franchise progress in Kansas City. Elec Ry J 42:469-70, 510-1 S 20-27 '13

- Kansas City franchise developments. Elec Ry J 42:1149 N 29 '13
- Kansas City street railway—proposed ordinance granting a thirty-year franchise. Elec Ry J 42:1029 N 8 '13
- Mayor Jost's ideas on new franchise. Elec Ry J 41:555 Mr 22 '13
- Terms of proposed agreement between Cincinnati traction company and the city. Elec Ry J 41:648-9 Ap 5 '13

Management

- Alternate-stop plan in Cleveland. Elec Ry J 41:141 Ja 25 '13
- American electric railway transportation & traffic association: report of committee on passenger traffic. Elec Ry J 42:849-50 O 17 '13
- Caring for lost articles in Boston. E: Dana. Elec Ry J 42:68-9 Jl 12 '13
- Claims department. E. F. Schneider. Elec Ry J 42:22-4 Jl 5 '13
- Disciplining trainmen and recording turn-ins at Muskogee, Okla. Elec Ry J 42:1332-3 D 27 '13
- Dispatching and handling street cars and train crews. E: Hammett. Elec Ry J 41:108-9 Ja 18 '13
- Experience with one-man-operated cars. Elec Ry J 41:578-82 Mr 29 '13
- How service requirements are ascertained in Boston. E: Dana. Elec Ry J 42:340-1 Ag 30 '13
- Investigation of street railway service at Boston. Elec Ry J 42:1296 D 20 '13
- One-man cars of the Detroit united railways. Il Elec Ry J 42:1335 D 27 '13
- Operating economies. J. S. Doyle. Elec Ry J 41:1148-51 Je 28 '13
- Park management and its transportation problems. C. F. Crane. Elec Ry J 41:507 Mr 15 '13
- Proposed co-operative store and other improvements in Philadelphia. Elec Ry J 41:254 F 8 '13
- Report of Board of supervising engineers, Chicago traction on Chicago rolling stock, for year ended Jan. 31, 1911. Elec Ry J 41:803-6 My 17 '13
- Report of the joint committee of Am. electric railway engineering and Transportation & traffic associations on train operation for city service. Elec Ry J 42:775-7 O 15 '13
- Report on traffic conditions in St. Louis. Elec Ry J 41:676-8 Ap 12 '13
- Review of the Statesbury management in Philadelphia. Elec Ry J 42:1347-8 D 27 '13
- Service equipment and operation in Chicago. Elec Ry J 42:265-8 Ag 16 '13
- Service improvement in Rochester. Elec Ry J 42:176 Ag 2 '13
- Service order for Milwaukee lines. Elec Ry J 42:1182-6 D 6 '13
- Tale of two cities. W: A. Heindle. Elec Ry J 41:506-7 Mr 15 '13
- Tests of two-car trains in city service. Elec Ry J 42:935-6 O 25 '13
- Train operation for city service. Elec Ry J 42:10-6 Jl 5 '13
- Uses of the one-man car. Elec Ry J 41:572 Mr 29 '13

Public relations

- Public relations discussed by New York electric railway association. Elec Ry J 42:1227-32 D 13 '13

See also Street railroad law; Street railroads—Franchises; Street railroads—Valuation

Schedules

- American electric railway transportation & traffic association: report of committee on schedules and timetables. Elec Ry J 42:847-8 O 17 '13
- Construction of crew and car schedules. J: J. Dempsey. Elec Ry J 41:1151-3 Je 28 '13
- Schedule boards for city lines. Elec Ry J 41:72 Ja 11 '13
- Timetable making in Buffalo. Elec Ry J 42:504-5 S 27 '13

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Cincinnati traction company's track construction methods. il Elec Ry J 42:1086-8 N 22 '13

Maintenance of way in Syracuse. Elec Ry J 42:1187-8 D 6 '13

Modern methods in track bed construction: concrete base, steel cross ties. il diag Concrete Cem 3:60-1 Ag '13

Paving protector used with T-rail in Memphis, Tenn. il Elec Ry J 42:1145 N 29 '13

Steel tie and concrete track construction at Springfield, Mo. Elec Ry J 41:208-9 F 1 '13

T-rail in paved streets. R. C. Cram. il Elec Ry J 42:368-73 S 6 '13

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Two methods of paving street-railway tracks. diag Eng N 70:1229 D 18 '13

See also Electric railroads—Track; Rails

Transfers

American electric railway transportation & traffic association and Accountants' association: report of committee on fares and transfers. Elec Ry J 42:811 O 16 '13

Joint meeting of the Accountants' and Transportation & traffic associations discusses fares and transfers and express and freight traffic. Elec Ry J 42:798-800 O 16 '13

Transfer issuing and recording machine. il Elec Ry J 42:1065 N 15 '13

Valuation

Appraisal of the city lines of the Detroit united railway. plan Elec Ry J 41:897-8 My 17 '13

Something along the line of physical and intangible valuation as covered by recent legislation. R. B. Rifenberick. Elec Ry J 41:1163-7 Je 28 '13

Street-railway valuation in Kansas City, Mo. Eng N 69:1053-7 My 22 '13

Value of property in New York reorganization case. Elec Ry J 41:381-2 Mr 1 '13

Boston

Accident prevention in Boston. E: Dana. il Elec Ry J 41:58-61 Ja 11 '13

Brazil

Street car ambulance. Sci Am 108:316 Ap 5 '13

Chicago

Chicago surface railway officials advocate traction merger. Elec Ry J 41:157-8 Ja 25 '13

Detroit

Decision of Supreme court in Fort street case, Detroit. Elec Ry J 41:1030-1 Je 7 '13

Detroit's municipal ownership charter amendments. Elec Ry J 41:557 Mr 22 '13

Great Britain

British tramway statistics for 1911-1912. Elec Ry J 42:67 Jl 12 '13

12th annual conference of Municipal tramways association. Elec Ry J 42:689-90 O 11 '13

Unsuccessful municipal tramways in England. Elec Ry J 42:171 Ag 2 '13

Kansas City

Franchise negotiations in Kansas City resumed. Elec Ry J 41:1031 Je 7 '13

Report on street railway system of Kansas City. Elec Ry J 41:716-20 Ap 19 '13

Massachusetts

Report of Massachusetts railroad commission, 1912. Elec Ry J 41:162 Ja 25 '13

New York

Example of good publicity in statement of N. Y. railways co. Elec Ry J 41:281 F 15 '13

San Francisco

Final report on San Francisco. Elec Ry J 41:844-52 My 10 '13

Reports on San Francisco conditions. Elec Ry J 41:62-6 Ja 11 '13

San Francisco municipal railway. map Elec Ry J 42:672-3, 686-8 O 11 '13

Street railway traffic congestion in San Francisco. Eng Rec 67:41 Ja 11 '13

Transfers between San Francisco's municipal and corporation street railways. Munic Eng 45:44-6 Jl 13

Syracuse, N. Y.

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Toronto

Proposed sale of Toronto utilities to the city. Elec Ry J 42:941-2 O 25 '13; Same. Elec W 62:832-3 O 25 '13

Report on Toronto conditions. Elec Ry J 41:368-70 My 31 '13

Valuation of Toronto public utilities. Elec Ry J 42:1053-4 N 15 '13

United States

Mr. Dalrymple's impressions of his visit. Elec Ry J 42:932-3 O 25 '13

Street railroads, Municipal

San Francisco municipal railway. map Elec Ry J 42:672-3, 686-8 O 11 '13

Unsuccessful municipal tramways in England. Elec Ry J 42:171 Ag 2 '13

Street sprinkling

Sprinkling and oiling streets, St. Paul, Minn.; organization, methods, cost, and method of assessing cost. Eng N 70:295-7 Ag 14 '13

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Automobiles and pedestrians. F: J. Hillman. il Automobile 29:228-9 Ag 7 '13

Congestion of traffic on Fifth ave., N. Y. Munic Eng 44:433-4 My '13

Dangers of street traffic and danger signals. F: R. Hutton. Sci Am S 75:235 Ap 12 '13

Motor omnibus accidents in London. Eng. H. R. Wilson. Eng N 70:550-2 S 18 '13

New street traffic regulation at Los Angeles. Cal. C: K. Mohler. Eng N 69:895 My 1 '13

Proposed standard record of street traffic. il Eng N 69:4-6 Ja 2 '13

Protecting street traffic from falling objects during building construction at Dey street. New York city. plan Eng N 70:356 Ag 21 '13

Regulating standing of vehicles on the street, in Birmingham, Ala. Munic Eng 44:123 F '13

Trackless-trolley motor for assisting haulage on a steep-grade street at Altona, Germany. J. P. Schroeter. il Eng N 70:253 Ag 7 '13

Streets

Cave-in of Randolph street, Chicago. il Eng Rec 68:677-8, 715-6 D 13, 27 '13

Street collapse at Chicago. diag Eng N 70:1206 D 11 '13

Street sanitation in New Orleans. G: S. Smith. il Munic Eng 44:160-2 F '13

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Strength of materials

Bending strength of yellow-pine timber. J. J. Morgan. Eng Rec 67:608-9 My 31 '13

Bending strength of yellow-pine timber. A. T. North. Eng Rec 68:27-8 Jl 5 '13

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- Combination concrete and cast iron for columns and arch ribs. *il* Eng N 70:864-5 O 30 '13
- Comparative test of two full-sized reinforced-concrete flat-slab panels. H: T. Eddy. *il* Eng N 69:624-8 Mr 27 '13
- Comparative tests on fir cross-arms. *il* Elec W 61:318 F 8 '13
- Concrete beams for underground use. *diags* Eng & Min J 95:1095 My 31 '13
- Distribution of deformations in stressed metal. C. Frémont. *Am Soc M E J* 35:1297-1301 Ag '13
- Section moduli for rectangles; with data sheet supplement. K. E. Barrett. *Mach* 19: 523 Mr '13
- Strength and ductility of iron, steel and bronzes at high temperatures.** Eng N 69: 372-4 F 20 '13
- Strength of I-beams in flexure. H. F. Moore. *il* *diags* *Ill U Eng Exp Sta Bul* 63:1-40 '13
- Tests of large structural compression members. Eng Rec 67:227 Mr 1 '13
- Tests of the Norcross and mushroom flat slabs. Eng N 69:1139-40 My 29 '13
- Tests of two brick piers of unusual size. J. E. Howard. *il* Eng Rec 67:332-4 Mr 22 '13
- Tests of two large nickel steel columns. H: W. Hodge. *il* plan Eng Rec 67:234-5 Mr 1 '13
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Strikes

- Akron strike conditions becoming normal. *Automobile* 28:626 Mr 13 '13
- Buffalo machinists' strike. *Iron Age* 91:1309 My 29 '13
- Buffalo railway men on strike. *il* Elec Ry J 41:674-5 Ap 12 '13
- Cincinnati traction strike. *il* Elec Ry J 41: 890-2 My 17 '13
- Johannesburg strike. Eng & Min J 96:434 S 6 '13
- Lake Superior copper country strike. Eng & Min J 96:230 Ag 2 '13
- Lake Superior copper-country strike comments. Eng & Min J 96:411 Ag 30 '13
- Michigan copper strike. Eng & Min J 96: 301-2 Ag 16 '13
- Miners' strike on Vancouver Island. E. Jacobs. Eng & Min J 96:605-6 S 27 '13
- Municipal responsibility for strike damages; digest of briefs in case of Wells Fargo & Co. v. Jersey City. Elec Ry J 42:186-7 Ag 2 '13
- Municipal responsibility for strike losses. Elec Ry J 41:879 My 17 '13
- Present attitude and activities of organized labor. *Iron Age* 92:1219-22 N 27 '13
- Rand strike. Eng & Min J 96:313 Ag 16 '13
- Receivers to end strikes. Elec Ry J 41:921 My 24 '13
- Settlement of Indianapolis strike. Elec Ry J 42:1059-61 N 15 '13
- Short strike on Indianapolis interurban lines. Elec Ry J 42:346-7 Ag 30 '13
- Strike at Mount Hope (N. J.) iron mines. Eng & Min J 95:1066-7 My 24 '13
- Strike in Jamestown. Elec Ry J 41:901 My 17 '13
- Strike in the copper-mining district of upper Michigan. T. Thomas. Eng & Min J 96: 226-7 Ag 2 '13
- Strike on the North Eastern railway of England.** H. R. Wilson. Ry & Eng R 53:9 Ja 4 '13
- Strike on the Sunset lines. Ry Age 55:942-4, 959-62 N 21 '13
- Terms of settlement of Buffalo International railway strike. Elec Ry J 41:730 Ap 19 '13
- Terms of settlement of Cincinnati strike. Elec Ry J 41:939 My 21 '13
- Violence in Indianapolis strike. *il* Elec Ry J 42:1018-21 N 8 '13

See also Arbitration, Industrial

Structural painting. *See* Painting, Structural

Stucco

- Concrete stucco. L: T. Howe. *Concrete Cem* 2:79-80 F '13
- How to put on stucco. *Concrete Cem* 3:76-7 Ag '13
- Roughening walls for stucco finish. *Concrete Cem* 2:125 Mr '13
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Submarine boats

- Guns for submarines: a weapon that swings below decks during submergence. A. Gradenwitz. *il* Sci Am 108:222 Mr 8 '13
- "Kangaroo", transport ship for submarines. *il* Sci Am S 76:356 D 6 '13
- New Russian submarine Karas. F: C. Coleman. *il* Int Marine Eng 18:106-7 Mr '13
- New type of submarine boat. *il* Int Marine Eng 18:296-8 J1 '13
- Ocean-going submarines. Sci Am 109:284 O 11 '13
- Rescue apparatus for the crew of a wrecked submarine. A: Gradenwitz. *il* Sci Am 109: 398 N 22 '13
- Russia's submarine cruiser. R. G. Skerrett. *il* Sci Am 108:376 Ap 26 '13
- Thirty-six hours under water. C. L. Edholm. Sci Am 108:556 Je 21 '13
- Visibility of submarines. W. L. Cathcart. Sci Am 109:128-9 Ag 16 '13

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Submarine cables. *See* Cables, Submarine

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Submarine signals

- Submarine violin. Sci Am 108:514 Je 7 '13
- Wireless and sound signals as aids to navigation. L. E. Browne. *il* Sci Am 109:50 J1 19 '13

Submarine transmission. *See* Cables, Submarine

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Substitutes. O. Becklestein. Sci Am S 75:80 F 1 '13

Subways

- Alameda avenue subway in Denver. *il* plan Eng Rec 68:66-8 J1 19 '13
- Boston, Mass.—subway construction. map plans Eng N 70:1190-2 D 11 '13
- Building a four-track tunnel beneath Broadway, New York. Sci Am 108:154 F 15 '13
- Building Harlem river subway tubes. *il* *diags* Eng Rec 68:390-1 O 4 '13
- Concreting the Harlem river subway tunnel. *il* Eng Rec 68:404 O 11 '13
- Contract signed for New York subways. Ry & Eng R 53:260-2 Mr 22 '13
- Difficult bracing for Lexington avenue subway. N. Y. Eng Rec 67:632 Je 7 '13
- Difficult tunnel work on the Metropolitan railway of Paris, France. *diags* Eng N 70: 504-6 S 11 '13
- Excavating Lexington avenue subway; unstable soil on section 2A necessitated heavy timbering, special drainage equipment, underpinning and sewer relocation. *diags* Eng Rec 68:216-7 Ag 23 '13
- Extensions of the Boston subway. *il* Ry & Eng R 53:262-4 Mr 22 '13
- Financial aspects of the relief of congestion by the construction of subways and viaducts. C: S. Sergeant. Elec Ry J 42:813-4 O 16 '13
- Hamburg subway and elevated railway. *il* map Elec Ry J 41:415-9 Mr 8 '13
- Harlem river section of the New York subway: floating and sinking. *il* *diags* Eng Rec 68:284-7 S 13 '13
- Harlem river subway tunnel. *diags* Eng Rec 68:556-7 N 15 '13
- Harlem river tubular steel tunnel, New York city. *il* Ry & Eng R 53:977-8 O 18 '13
- Harlem river tunnel; details of construction by the Hoff system. *il* Iron Tr 53:533-7 S 25 '13

Subways—Continued.

- Overcoming difficulties in New York Lexington avenue subway: excavating rock and quicksand 50 feet below tide level under traffic in city streets. *il Eng Rec* 68:575-7 N 22 '13
- Pneumatic caisson piers for New York subway tunnel. *Eng Rec* 68:524 N 8 '13
- Progress of the dual subway system, New York city. *Ry & Eng R* 53:1038-9 N 8 '13
- Progress of the new Harlem river tunnel: sinking of the first section of tunnel tubes. *il Sci Am* 109:244-5 S 27 '13
- Proposed subway for Chicago. W. J. Shanks. *Eng N* 70:1044 N 20 '13; Same. *Ry & Eng R* 53:1081-2 N 22 '13
- Proposed subway system for Chicago, plan *Eng M* 41:251-4 N '12
- Railway tunnels of New York city. A. Noble. *il plans maps J Fr Inst* 175:343-84 Ap '13
- Railways and subways at Buenos Aires, P. Lavis. *il map Eng Rec* 68:613-5 N 29 '13
- Rapid transit development in Berlin and New York: subway and elevated lines. *maps Elec Ry J* 42:377-9 S 6 '13
- Shall we have bridges or tunnels? G. F. Kunz. *Sci Am S* 76:402-3 D 27 '13
- Sinking second section of Harlem river tunnel tubes for Lexington avenue subway, New York city. *Eng Rec* 68:372 O 4 '13
- Subway fire walls. *Arch & Eldg* 45:165 Ap '13
- Subways for Chicago. *Munic Eng* 45:542-3 D '13
- Timbering and drainage covered subway trench in quicksand, Lexington ave., N. Y. *Eng Rec* 68:249-50 Ag 30 '13
- Troy union station depressed concourse. J. R. Taft. *Eng Rec* 68:691-2 D 20 '13
- Tunnel excavation on section 1A of the Lexington ave. subway in New York. *il diags Eng Rec* 68:147-8 Ag 9 '13
- Unit subway construction in Kansas City. *il diags Eng Rec* 68:228-30 Ag 30 '13
- Utilizing electrical energy in the construction of subway at Boston. *il Elec W* 61:44-7 Ja 4 '13
- See also* Rapid transit; Tunnels and tunneling

Ventilation

- Ventilation of subway tunnels. *Ry Age* 54:726-9 Mr 21 '13

Success

- Cost of success. *Sci Am S* 75:291 My 10 '13
- One essential of success is system. *il Dom Eng* 64:68-9 Jl 19 '13
- Success. B. A. Worthington. *Ry & Eng R* 53:64-5 Ja 18 '13

Suez canal

- Rock-removing machinery of the Suez canal. J. Boyer. *il Sci Am* 108:107 F 1 '13
- Suez canal is not owned by the British government. *Sci Am S* 75:51 Ja 25 '13

Sugar

- Effect of sugar on concrete. C. A. Newhall. *Eng N* 69:478-9 Mr 6 '13

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- Sulphide ores of copper: some results of microscopic study. L. C. Graton. *il Am Inst Min E Bul* 77:741-98 My '13; Discussion. 77:798-811 My '13

Sulphur

- Glow of sulphur. W. H. Watson. *Sci Am S* 76:391 D 20 '13
- Increased sulphur output. *Eng & Min J* 95:96 Ja 11 '13
- New desulphurizing method; sulphur removed by distillation into its elemental forms. W. A. Hall. *Eng M* 45:876-8 S '13
- Present status of the thiothen process. S. W. Young. *Eng & Min J* 95:369-70 F 15 '13
- Testing oils for sulphur. W. Pattern. *Power* 37:626-7 My 6 '13
- Texas sulphur. *Sci Am* 109:66 Jl 26 '13
- White Island sulphur deposit. *il Eng & Min J* 96:815-7 N 1 '13

Sulphuric acid

- Falding sulphuric acid chamber. *il Eng & Min J* 95:318-20 F 8 '13
- Ore leaching by the Tennessee copper co.: making acid from smelting-works gases. H. F. Wierum. *Eng & Min J* 96:435-7 S 6 '13
- Sulphuric acid manufacture in Great Britain. *Eng & Min J* 96:776 O 25 '13

Sulphurous acid

- New tables and diagrams for sulphurous acid. *Hybl. Am Soc M E J* 35:1066-70 Je '13

Sun

See also Solar power plants

Sunstrokes

- Two kinds of sunstrokes. *Sci Am S* 76:64 Jl 26 '13

Superheated steam

- Compound locomotives and superheat. *Sci Am S* 75:407 Je 28 '13
- Duchesse's experiments on superheat. R. C. H. Heck. *Power* 38:116-9 Jl 22 '13
- Increase in locomotive capacity by the use of highly superheated steam. G. E. Ryder. *Ry & Eng R* 53:101-3 F 1 '13
- Maintenance and operation of superheater locomotives. G. E. Ryder. *il Sci Am S* 76:164-5 S 13 '13; Same cond. *Eng M* 45:582-6 Jl '13
- Steam power plant piping details. W. F. Fischer. *Mach* 19:703-5 My '13
- Superheated steam with and without jacketing. H. Hanszel. *Power* 37:360-70 Mr 18 '13
- Superheating. C. R. D. Meier. *Power* 37:471 Ap 1 '13

Superheaters

- Lanz counterflow superheater. A. Gradenwitz. *il Power* 38:108-9 Jl 15 '13
- Mestre system squirrel cage superheater for tubular boilers. P. Lachasse. *diags Am Soc M E J* 35:1062-4 Je '13
- See also* Locomotives—Superheaters

Superheating

- Automatic regulation of superheat. plans *Ind Eng* 13:359-61 Ag '13
- Automatic regulation of superheat. *diag Power* 38:191-2 Ag 5 '13
- Automatic regulation of superheat. *diags Iron Age* 92:185 Jl 24 '13
- Hyperbasis. *Met & Chem Eng* 11:283 My '13
- Superheating and feed water heating: theoretical discussion checked by results on Egyptian state railways. F. H. Trevithick and P. J. Cowan. *Ry Age* 54:1543-8 Je 20 '13
- See also* Locomotives—Superheaters; Superheated steam

Superphosphate

- Manufacture of acid phosphate. S. L. Lloyd. *Mines & Min* 33:329 Ja '13

Supersaturation

- Hyperbasis. *Met & Chem Eng* 11:283 My '13

Supply cars. *See* Cars (supply)**Supreme court.** *See* United States—Supreme court**Surgery**

- Triumphs in surgery. *Sci Am* 109:210 S 13 '13

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- Blessings of science on the battlefield. *diags Sci Am* 109:477 D 20 '13

Surveying

- Allowable use of small angles in surveying. W. H. Rayner. *Eng Rec* 68:439 O 18 '13
- Civil service examination for New York state. *Eng N* 70:1129 D 4 '13
- County surveyor-engineer. J. W. Mavity. *Eng N* 70:1189 D 11 '13
- Dominion land surveys. J. A. Macdonald. *Eng Rec* 68:156 Ag 9 '13
- Fieldwork and computations for laying out subdivisions on curved street lines. J. H. Anderson. *Eng N* 69:846-9 Ap 24 '13
- How to lay out building lots or foundations. *Concrete Cem* 2:251-2 My '13
- Instructions for subsurface survey of Cincinnati. *Eng N* 70:1080-3 N 27 '13

Surveying—Continued.

- Manual signals for field engineers. *il Eng N 70:360-1 Ag 21 '13*
 Plane-table survey in Asia Minor. L. T. Emory. *il Eng Rec 68:437-8 O 18 '13*
 Preliminary survey for Mount Royal tunnel. Eng & Min J 95:651-2 Mr 29 '13
 Surveying lots with curved boundaries. Eng N 69:1328-30 Je 26 '13
 United States land surveys in rough country. Eng Rec 67:406 Ap 12 '13

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Surveying, Topographical. *See* Topographical surveying

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Scaling mountain peaks by elevator. *il Sci Am S 75:164-5 Mr 15 '13*

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Swaging machines

Langellier hot swaging machine with heating furnace. *il Mach 19:816-7 Je '13*

Langellier swaging machine for wire spokes. *il Am Mach 38:752-3 My 1 '13; Mach 19:739 My '13*

Machine for swaging automobile wire-wheel spokes. *Sci Am 109:214 S 13 '13*

Swain, George Fillmore, 1857-

Geo. F. Swain, president of Am. Soc. C. E.

C. F. Allen. *por Eng N 69:196-8 Ja 30 '13*

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Swank, James Moore, 1832-

James M. Swank retires. *por Iron Age 91: 77 Ja 2 '13*

Sweden**Industries and resources**

Electro-metallurgy in Scandinavia. Eng & Min J 95:1203-5 Je 14 '13

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Swimming pools

Boiler capacity required to heat a swimming pool. J. P. Lisk. *Power 37:277 F 25 '13*

First open air natatorium for Chicago. *il Munic Eng 44:451 My '13*

Swimming pool in the new gymnasium of the Rensselaer polytechnic institute, Troy, N. Y. *plan Eng N 69:256-7 F 6 '13*

Swindlers and swindling

Salted mines. G. L. Sheldon. Eng & Min J 96:1113-4 D 13 '13

Swine

Pork production. J. L. Thompson. *Sci Am S 75:324 My 24 '13*

Swing bridges. *See* Drawbridges

Switch damper, Development of the. W. J. S. Baldwin. *plans Heat & Ven 10:22-5 Ja '13*

Switchboards

Meter test boards. G. C. Cassard. *diags Power 37:778-9 Je 3 '13*

Switchboard reconstruction at Milwaukee. *il Elec W 62:806-7 O 18 '13*

See also Electric switches

Switches, Electric. *See* Electric switches

Switches, Railroad. *See* Railroads—Switches

Swords

Manufacture of Japanese swords, with references to the swords of other countries. R. L. Geare. *il Metal Ind n s 11:304-5 Jl '13*

Sydney, Australia**Rapid transit**

Proposed subways and harbor bridge at Sydney, Australia. C. O. Burge. Eng Rec 67: 610 My 31 '13

Symbols. *See* Engineering notation

Symbols, Electric. *See* Electric symbols

Synchronizing

Operation of frequency changers. N. E. Funk. Am Inst E E Pro 32:1578-96 Jl '13; Discussion. 32:2266-71 D '13

Synchronous motors. *See* Electric motors, Synchronous

Syndicalism

Syndicalism: a policy of ruin. Eng M 44:929-31 Mr '13

Syndicalism or co-operation? J. Douglas. Eng M 44:833-41 Mr '13

Synthetic stone. *See* Stone, Artificial

Syntonicizers

Marconi multiple syntonizer. *il Sci Am S 75: 187 Mr 22 '13*

T

T-rails. *See* Rails

Tachometers

Brown electric tachometer. Mach 19:477-8 F '13

Close measurement of speed. N. M. Hopkins. Elec W 62:136 Jl 19 '13

New electric speed indicator and recorder. *il Met & Chem Eng 11:109 F '13*

Vehicle movement recording device. *il Sci Am 109:248 S 27 '13*

Tacoma, Washington**Bridges**

Vertical life-span highway bridge in Tacoma. *il Eng Rec 67:428-9 Ap 19 '13*

Public works

Tacoma's Nisqually river development. R. H. Richards. *il Elec W 62:227-9 Ag 2 '13*

Tact

Value of tact. *Power 37:58 Ja 14 '13*

Tailings

Roasting and leaching tailings at Anaconda, Mont. F. Laist. *il plans Am Inst Min E Bul 79:1147-62 Jl '13; Discussion. 83:2709-13 N '13*

Talc

Talc industry. Eng & Min J 95:185-6 Ja 18 '13

Talking machines. *See* Phonograph

Talking moving pictures. *See* Moving and talking pictures

Tall buildings. *See* High buildings

Tamping machines

Mechanical trench tamping. *il Munic Eng 44: 569-71 Je '13*

Tamping machine for backfilling trenches. *il Eng N 69:361-2 F 20 '13*

Tan bark

Economic study of acacias. C. H. Shinn. *il U S Agric Bul 9:16-25 '13*

Harvesting tan bark. S. J. Record. *il Sci Am S 75:408-9 Je 28 '13*

Tan bark. *diag Eng M 45:233-7 My '13*

Tanbark. *See* Tan bark

Tank cars

Tank car design. H. E. Parsons. *diags Ry Age (Mech ed) 87:445-6 Ag '13*

Tank ships

German Diesel engined tank ship Hagen. *il plans Int Marine Eng 18:207-11 My '13*

Motor tank ship Wotan. *il Int Marine Eng 18:496 N '13*

Motorship Wotan. *il Power 38:604-5 O 28 '13*

Twin-screw motor-ship Hagen—a new Krupp two-stroke type Diesel-engine tank vessel of 2400 b. hp. J. R. Wilson. *il Eng N 69: 906-7 My 1 '13*

Tanks

House tanks and the principle of their construction. F. W. Tower. *Dom Eng 63:184-5 My 17 '13*

Joplin intermittent settling tank. C. T. Rice. *il Eng & Min J 95:1198 Je 14 '13*

Tanks—Continued.

New plant of the Prest-O-Lite company, Indianapolis, making tanks for distributing acetylene gas. *il plan Iron Age* 92:189-95 S 4 '13

Proportioning the shell plating of tanks. *Eng N* 69:170-1 Ja 23 '13

Tank design: behavior of a large gasholder tank. *Eng N* 69:370 F 20 '13

Tanks for vegetable oil. *Concrete Cem* 2:124 Mr '13

See also Grain elevators; Imhoff tanks; Railroads—Water supply; Septic tanks; Tank cars; Tank ships; Water towers

Tanks, Water. *See* Water towers

Tanneries

Tannery buildings in reinforced concrete for American hide & leather co., Lowell, Mass. *il Concrete Cem* 2:171-2 Ap '13

Tanning

Syntans: new artificial tanning materials. *E. Stiasny. Sci Am S* 76:242 O 18 '13

Synthetic tannin. *Sci Am S* 76:147 S 6 '13

Tantalum

Separation of niobium and tantalum. *Eng & Min J* 95:1250 Je 21 '13

Tapers

Taper boring and turning attachments. *A. A. Dowd. diags Mach* 20:265-71 D '13

Turning tapers on a lathe. *F. W. Roth. Am Mach* 38:778 My 8 '13

Tapestry

Tapestries from the architectural point of view. *G. L. Hunter. il Arch Rec* 33:1-13, 137-51 Ja-F '13

Tapestries, their origin, history and renaissance, by G. L. Hunter. *Review. il Arch Rec* 33:91-3 Ja '13

Taps

Methods used and new type of tap thread relief. *diags Mach* 20:261-4 D '13

New standard dimensions for taps. *Mach* 19:357 Ja '13

Special shanks for taps. *diags Mach* 19:420 F '13

Tap fluting cutters. *diags Mach* 19:568-9 Mr '13

See also Screw machines

Tar

American and British road tars: comparative analyses. *W. W. Crosby. Eng Rec* 68:703 D 20 '13

Briquetting pitch from coke oven tar. *Iron Age* 92:589-90 S 11 '13

New process of cleaning producer gas. *H. F. Smith. il diag Am Soc M E J* 35:1601-8 N '13; *Same. Iron Age* 92:1158-9 N 29 '13; *Same cond. Ind Eng* 13:531 D '13

See also Roads, Tarred

Target practice

Shooting at moving pictures. *il Sci Am* 109:49 Ji 19 '13

See also Rifle practice

Tariff

See also Customs service

United States

Cement industry in the United States. *Eng Rec* 67:59 Ja 18 '13

Chairman Topping on iron and steel tariff; argument against Underwood bill. *Iron Age* 91:206-7, 227-8 Ja 16 '13

Effect of tariff on iron and steel. *Dom Eng* 65:177-8 N 8 '13

Ferromanganese duty. *Iron Age* 91:1016-7 Ap 24 '13

Hearings before the ways and means committee. *Iron Tr R* 52:263-6 Ja 23 '13

Lead and zinc schedules. *Eng & Min J* 96:657-8 O 4 '13

Manufacturers' opinions on the Underwood bill. *Iron Tr R* 52:935-6 Ap 17 '13

Metal schedule in the House. *Iron Tr R* 52:1084-6 My 8 '13

Metal schedule of the Underwood tariff: dutiable list and free list. *Iron Age* 91:sup 894a-894d Ap 10 '13

Metal tariff in the Senate. *Eng & Min J* 96:198 Ag 2 '13

New iron, steel and metal tariff rates. *Iron Age* 92:723-7 O 2 '13

New tariff bill. *Iron Age* 91:896-7 Ap 19 '13

New tariff bill and the machine tool industry. *Mach* 19:682a My '13

New Underwood bill; iron ore and rails placed on the free list. *Iron Tr R* 52:876-8 Ap 10 '13

Pig iron and ferro may be put on free list. *Iron Tr R* 52:1256 My 29 '13

Power of corporation feared in case tariff is reduced; hearings at Washington. *Iron Tr R* 52:216 Ja 16 '13

Proposed new tariff; metals and ores. *Eng & Min J* 95:769 Ap 12 '13

Proposed tariff on automobiles unchanged. *Automobile* 29:325 O 2 '13

Tariff hearings at Washington. *Iron Age* 91:203-5 Ja 16 '13

Tariff hearings at Washington on metal schedule. *Iron Age* 91:280 Ja 23 '13

Tariff hearings on schedules B and C (rods and wire). *Elec W* 61:229 F 1 '13

Tariff hearings on schedules B and C; arc lamp carbons; aluminum; mica; ferroalloys. *Elec W* 61:338-40 F 15 '13

Tariff on metals. *Metal Ind n s* 11:219-20 My '13

Underwood-Simmons metal tariff schedule. *Iron Age* 91:1549a-1549d Je 26 '13

Underwood tariff bill. *Elec W* 61:760 Ap 12 '13

Underwood tariff bill attacked. *Iron Age* 91:1019 Ap 24 '13

What Congress thinks of the aluminum tariff. *Foundry* 41:249 Je '13

Wilson-Underwood schedule proposes reduction of duty on chassis and parts. *Automobile* 28:798-9 Ap 10 '13

Woolen industry and the tariff. *J. E. Fletcher. Am Ind* 13:26 Ja '13

Tarred roads. *See* Roads, Tarred

Tark setting for firemen. *W. N. Polakov. diags Am Soc M E J* 35:1729-69 D '13; *Same cond., with discussion. Power* 38:881-7 D 23 '13

Task work. *See* Time study

Taxation

American electric railway association: report of committee on taxation. *Elec Ry J* 42:846 O 17 '13

Houston's plan of taxation. *J. J. Pastoriza. Munic Eng* 45:235-6 S '13

See also Appraising; Automobiles—Taxation; Corporations—Taxation; Income Tax; Mine taxation

Taximeters

Mechanical principle of Seiman taximeter. *diags Automobile* 29:246-7 Ag 7 '13

Taylor system. *See* Scientific management

Tea

Furnishing tea for workmen. *il Ind Eng* 13:369-70 S '13

Teaching

Efficiency in learning; a practical result of experimental pedagogy. *P. R. Radosavljevich. il Sci Am* 109:179-80 S 6 '13

See also Education

Technical education

Course in industrial physics. *Eng Rec* 67:511 My 10 '13

Educational experiment in Rochester: co-operation of school and shop. *Elec Ry J* 41:461 Mr 15 '13

Efficiency in technical education. *Eng Rec* 68:658-9 D 13 '13

Handicap of the technical graduate. *H. A. Everett. Int Marine Eng* 18:27-8 Ja '13

How can the colleges and the industries co-operate? *I. L. Lee. Ry & Eng R* 53:710-1 Ji 26 '13

Industrial need of technically trained men. *Sci Am* 108:252; 109:42, 116, 218, 292 Mr 15, Ji 12, Ag 9, S 13, O 11 '13

Municipal need of technically trained men. *R. Blankenburg. Sci Am* 108:342 Ap 12 '13

Technical education—Continued.

Study of modern languages in technical schools. W. H. Herschel. Eng N 69:412-5 F 27 '13

Technical training and specialization. Iron Age 31:12-7-8 My 29 '13

Technical training of body designers. Automobile 28:897 Ap 24 '13

Why there is place in business for men technically trained. J. Ritchie, jr. Sci Am 108:548 Je 14 '13

Work of the technical school. H. M. Howe. Iron Age 91:1401 Je 5 '13

See also Apprentices; Corporation schools; Engineering education; Industrial education; Mining schools and education; Railroad education; Trade schools

Technical literature

French and German literature for electrical engineers. R. C. Powell; W. Whited. Eng N 69:1014-5 My 15 '13

See also Engineering literature

Technical papers

Improving the character of technical papers. Eng Rec 67:249-50 Mr 1 '13

Technology

See Chemistry, Technical; Engineering; Manufactures; Metallurgy; Technical education

Telegraph

Combined telephone and telegraph service; arrangements for simplex, composite and phantom circuits. H. S. Warren. il Eng M 46:274-6 N '13

How telegrams are sent in China. R. E. Chambers. il Sci Am 109:367 N 8 '13

Propagation of high-frequency electric waves along wires. J. S. Stone. Sci Am S 75:309-11, 333-5 My 17-24 '13

Status of the telegraph in 1912. W. Maver, jr. Elec W 61:24-5 Ja 4 '13

Telephony and telegraphy in 1912. Elec R & W Elec'n 62:7-8 Ja 4 '13

32d annual convention of Railway telegraph superintendents. St. Louis, May, 1913. Elec W 61:1127-8 My 31 '13

See also Electric lines; Train dispatching; Wireless telegraph

Telegraph, Submarine

Gott patent for submarine cable signaling. plan Elec W 61:658-9 Mr 29 '13

Morse signals from London to New York. Sci Am 108:192 Mr 1 '13

Telegraph, Wireless. See Wireless telegraph**Telegraph poles. See Poles; Poles, Concrete****Telegraph wires, Singing of. Sci Am 108:337 Ap 12 '13****Telepathy**

Law of magnetic communications between human beings. S. Richardson. Sci Am 109:127 Ag 16 '13

Telephone

Automatic methods in long distance telephone operation. H. M. Friendly and A. E. Burns. il Am Inst E E Pro 32:1442-69 Je '13; Discussion. 32:2279-90 D '13

Automatic telephone system. il diag Elec W 61:1329-30 Je 14 '13

Batter-ringing telephones; system specially adapted for small installations. plan Sci Am S 75:30-1 Ja 11 '13

Charles Bourseul and the electric telephone. Elec W 61:973 My 10 '13

Combined telephone and telegraph service; arrangements for simplex, composite and phantom circuits. H. S. Warren. il Eng M 46:274 N '13

Electrical phenomenon. A. A. C. Swinton. Sci Am S 75:243 Ap 19 '13

Exhibit of historical and modern telephone apparatus. il Elec W 61:368-9 F 15 '13

German police telephone. A. Gradenwitz. il Sci Am S 75:61 Ja 25 '13

Gulf of Georgia submarine telephone cable. E. P. La Belle and L. P. Crin. il Am Inst E E Pro 32:1818-31 S '13

Handling telephone cables in the mine. G. Brown. il Eng & Min J 96:1216-8 D 27 '13

Intensifier for telephone transmission. J. Boyer. Sci Am 108:544-5 Je 14 '13

Intercommunicating telephone facilities of the Burnside shops. Illinois Central railroad. il Ry & Eng R 53:1134 D 6 '13

Loaded and unloaded telephone lines. A. E. Kennelly. plan Elec W 61:451 Mr 1 '13

Loud-speaking telephone. il Sci Am 108:564 Je 21 '13

Mine rescue telephone equipment. il Sci Am 109:340 N 1 '13

National independent telephone convention at Chicago, Feb., 1913. Elec W 61:487-8 Mr 8 '13

Pioneers in telephone engineering. T. A. Watson. il Sci Am S 75:216-7 Ap 5 '13

Portable mine rescue telephone. il Eng & Min J 96:246 Ag 9 '13

Present status of the telephone industry in the United States. Eng N 69:784 Ap 17 '13

Propagation of high-frequency electric waves along wires. J. S. Stone. il Sci Am S 75:309-11, 333-5 My 17-24 '13

Recent telephone patents. Elec W 61:104, 357-8, 458-9, 940-1, 1097-8, 1318-9 Ja 11, F 15, Mr 1, My 3, 24, Je 14 '13

Status of the telephone in 1912. S. G. McMeen. Elec W 61:23-4 Ja 4 '13

Telephone call system. il Elec W 62:916 N 1 '13

Telephone equipment for mine rescue work. il Elec W 62:204 Jl 26 '13

Telephone transmitter without a mouthpiece. H. R. Van Deventer. il Sci Am 108:468 My 24 '13

Telephones in ticket offices. Ry Age 55:214-5, 325-6 Ag 8, 22 '13

Telephones on the Pennsylvania railroad. J. C. Johnson. Ry Age 54:1176-7 My 30 '13

Telephony and telegraphy in 1912. Elec R & W Elec'n 62:7-8 Ja 4 '13

Test of artificial aerial telephone line at frequency of 750 cycles per second. A. E. Kennelly and F. W. Lieberknecht. bibliog Am Inst E E Pro 32:1280-1301 Je '13; Discussion. 32:2279-90 D '13

See also Electric lines; Electric wire and wiring; Poles; Switchboards; Train dispatching; also Central union telephone co

Testing

Alternating-current generator for telephone current tests. A. Ebling. plans Elec W 61:1001-2 My 10 '13

Telephone companies

Government suit against the Am. telephone & telegraph co. Elec W 62:221 Ag 2 '13

Proposed absorption of competing telephone service in Chicago. Elec W 62:224 Ag 2 '13

Solution of the telephone trust difficulty. R. L. Lunt. Elec W 62:340 Ag 16 '13

Telephotography

Electric transmission of color photographs. S. M. Powell. plans Elec W 61:792-3 Ap 12 '13

Marino system of color telephotography. il Sci Am 108:272 Mr 22 '13

Rapid telephotography. R. Grimshaw. Sci Am 109:286 O 11 '13

Telescope

Reflector—the telescope of the future; why the large refractor must give way to mirrors. E. A. Fath. il Sci Am 109:30 Jl 12 '13

Telescope fish

Curious exotic fishes. J. Boyer. il Sci Am 109:92 Ag 2 '13

Telescope sights

Fire control platform of a United States battleship. J. B. Walker. Sci Am 109:363 N 8 '13

Telluride ores

Concentration of telluride ores. H. E. Wood. Eng & Min J 95:885-6 My 3 '13

Telpherage

Freight handling at steamship terminals. il plan Int Marine Eng 18:64-5 F '13

Warehouse telpherage system. il Eng N 69:40-1 Ja 2 '13

Telpherage—*Continued.*

Westinghouse telpherage system for handling freight at steamship terminals. *Il Int Marine Eng* 18:29-30 Ja '13

Temperature

Effect of air temperature, barometric pressure and humidity on the temperature rise of electric apparatus. C. E. Skinner, L. W. Chubb and P. Thomas. *Am Inst E E Pro* 32:544-61 F '13

Effect of room temperature on temperature rise of motors and generators. M. W. Day and R. A. Beekman. *Am Inst E E Pro* 32:416-36 F '13

Increase of well temperature with depth. *Eng & Min J* 96:783 O 25 '13

Influence of temperature, barometric pressure and humidity of the cooling medium on temperature rise of stationary induction apparatus. J. J. Frank and W. O. Dwyer. *Am Inst E E Pro* 32:338-62 F '13

Laboratory investigation of temperature rise as a function of atmospheric conditions. C. R. Blanchard and C. T. Anderson. *Am Inst E E Pro* 32:464-75 F '13

Regulating the temperature of liquids. *diag Met & Chem Eng* 11:659 N '13

Simple approximate rules for temperature conversions. C. Iering. *Met & Chem Eng* 11:176 Ap '13

Temperature and electrical insulation. C. P. Steinmetz and B. G. Launne. *Am Inst E E Pro* 32:113-23 F '13; Discussion. 32:1679-1737 Ag '13

Temperature conversion table. *Met & Chem Eng* 11:394 Ji '13

Temperature conversion tables. L. A. Waldo. *Am Inst Min E Bul* 76:555-9 Ap '13; Discussion. 77:982 My '13

Temperature of certain operations in the metallurgy of copper and lead. G. H. Clevenger. *diags Met & Chem Eng* 11:447-9 Ag '13

See also Cold; Heat; Melting points; Ocean temperature; Thermoelectricity

Measurement

Comparison of methods of loading large a-c. and d-c. generators and synchronous converters for factory temperature tests. F. D. Newbury. *Am Inst E E Pro* 32:669-77 F '13

Correction of transformer temperatures for variation in room temperature, taking into account both copper and iron losses. C. Fortescue. *Am Inst E E Pro* 32:698-16 F '13

Current rating of electric cables. R. W. Atkinson and H. W. Fisher. *Am Inst E E Pro* 32:566-73 F '13; Discussion. 32:1859-67 S '13

Discussion of group I papers (Heating, heat measurements, rating by heat). (See Proceedings for February, 1913) *Am Inst E E Pro* 32:1833-83 S '13

Ice detection at sea; apparatus indicating temperature changes in sea water. *Il Eng M* 46:281-3 N '13

Measurement of temperature by electrical means. C. E. Thwing. *Met & Chem Eng* 11:36-8 Ja '13

Measurement of temperature in rotating electric machines. L. W. Chubb, E. L. Chute and O. W. A. Oetting. *Am Inst E E Pro* 32:581-97 F '13

Method of determining temperature of alternating current generators and motors and room temperature. H. G. Reist and T. S. Eden. *Am Inst E E Pro* 32:226-34 F '13

Method of rating electrical apparatus. W. L. Merrill, W. H. Powell and C. Robbins. *Am Inst E E Pro* 32:127-36 F '13; Discussion. 32:1679-1737 Ag '13

Methods of determining temperature of transformers. W. M. McConabey and C. Fortescue. *Am Inst E E Pro* 32:506-19 F '13

Methods of determining temperature of transformers and of cooling medium. S. E. Johannesen and G. W. Wade. *Am Inst E E Pro* 32:254-75 F '13

Modern methods of measuring temperature: electric and other thermometers for use in industrial operations. R. S. Whipple. *Il diags Sci Am S* 76:296-9, 313-5 N 8-15 '13

Practical applications of temperature measurement. R. S. Whipple. *Sci Am S* 76:366-7 D 6 '13

Thermocouples and resistance coils for determination of local temperatures in electrical machines. J. A. Capp and L. T. Robinson. *Am Inst E E Pro* 32:702-8 Mr '13

Thermophones for temperature measurement in Kensico dam, Valhalla, N. Y. *Eng Rec* 68:119-29 Ag 2 '13

See also Calorimeters and calorimetry;

Pyrometers and pyrometry; Radiometers;

Radiomicrometers; Thermometers

Temperature recorders

New temperature recorder built by Leeds & Northrup co., Phil. *Il plan Met & Chem Eng* 11:110 F '13

Templates

Templates for embankment slopes. M. D. Ewell. *Il diags Eng N* 79:821-2 O 23 '13

Temples

Baalbek the Mysterious. H. J. Shepstone. *Il Sci Am* 109:156-7 D 13 '13

Temples of Dilwara on Mount Abu. T. G. Dalal. *Il Sci Am S* 76:299-1 S 27 '13

See also Church architecture

Tenement houses

Reinforced concrete Whitehall tenement building, Providence, R. I. *plan Eng Rec* 67:158-9 F 8 '13

Three-story tenement built of concrete with wall machines. *Il Concrete Cem* 2:43-4 Ja '13

See also Housing problem

Tennessee copper company

Report for 1912. *Eng & Min J* 95:839 Ap 26 '13

Terminals

How to increase marine terminal capacity. H. M. Harding. *Il Int Marine Eng* 18:335-8 Ag '13

Hughes terminal on the Delaware river at Philadelphia. H. M. Harding. *plan Eng N* 69:296-8 F 13 '13

Intercolonial railway harbor terminals at Halifax, N. S. E. A. Saunders. *Int Marine Eng* 18:72 F '13

Locating the friction in our transportation system. R. H. Rogers. *Il Sci Am S* 75:244 Ap 19 '13; Same cond. *Ry & Eng R* 53:212 Mr 8 '13

New steamship terminal at Philadelphia. H. M. Harding. *plan Int Marine Eng* 18:119-21 Mr '13

Ocean terminal for the South; Texas City harbor developments. L. C. Talmage. *Il Sci Am S* 75:116-7 F 22 '13

Port facilities for ships and cargoes. W. T. Donnelly. *Int Marine Eng* 18:167-9 Mr '13; Same cond. with discussion. *Am See M E J* 35:997-1009 Je '13

Report on New York terminals. *Ry & Eng R* 53:183-4 Mr 1 '13

What constitutes a steamship terminal. *Int Marine Eng* 18:21-3 Ja '13

See also Electric railroads—Terminals;

Freight terminals; Locomotive terminals;

Ports; Railroads—Terminals

Terminology, Electric. *See* Electric terminology**Terra-cotta**

History of architectural terra-cotta. H. L. King. *Il Arch & Bldg* 45:298-11, 311-6 My, Ji '13

Terre Haute, Indiana

Tornado, 1913

Tornado and flood damage at Terre Haute. M. A. Howe. *Il Eng N* 69:738-9 Ap 10 '13

Terrestrial magnetism. *See* Magnetism, Terrestrial

Testing

- American soc. for testing materials, 16th annual meeting, Atlantic City, June, 1913. Concrete Cem 3:12-4 J1 '13
- American soc. for testing materials, 16th annual meeting, Atlantic City, June, 1913. Eng N 70:37-42, 74-7 J1 3-10 '13
- Reducing spring manufacture to a science; equipment of testing laboratory to facilitate the scientific manufacture of motor vehicle springs. il plan Iron Tr R 52:567-70 Mr 6 '13
- Report of 16th annual meeting of American Society of testing materials. Iron Tr R 53:27-9; 34-9 J1 3 '13
- Testing laboratory and the constructing engineer. H. W. Hayward. Am Soc M E J 35:442-6 Mr '13
- Testing of materials. J Fr Inst 176:332-4 S '13

See also Cement testing; Coal testing; Electric testing; Extensometers; Fuel testing; Pavement testing; Strains and stresses; Strength of materials; Testing machines; also subjects, subhead Testing, e. g. Automobile engines—Testing; Boilers—Testing

Testing machines

- Drill tester for the shop. il diag Eng & Min J 96:829-31 N 1 '13
- Fatigue testing machine at Sibley college. G. B. Upton. il diags Sci Am S 76:372-3 D 13 '13
- Large testing machines and government work in testing materials. Eng N 70:564 S 18 '13
- Largest precision testing machine in the world. il Iron Tr R 53:453 S 11 '13
- Rail anchor testing machine. diag Ity Age 55:509 S 19 '13
- Schiller machine for testing of metals. diag Automobile 29:618 O 2 '13
- Spring testing machines. E. F. Lake. il Mach 20:217-21 N '13
- 3300-ton testing machine at Berlin. il Eng N 70:537 S 18 '13

Texas

- Texas iron ore deposits. R. Linton. il map Eng & Min J 96:1153-6 D 29 '13

Texas (battleship)

- First super-dreadnought of the U. S. Navy; the "Texas." il Sci Am 109:373 N 15 '13

Texas City, Texas

- Ocean terminal for the South: Texas City harbor developments. L. C. Talmage. il Sci Am S 75:116-7 F 22 '13

Texas association of master plumbers

- 12th annual convention, San Antonio, April, 1913. Dom Eng 63:154-6 My 10 '13

Text-books

- Historic value of text-books. H. L. Bullen. il Inland Ptr 51:358-61, 518-20 Je-J1 '13
- Historical inaccuracies in text-books on physics. Brother Potamian. Elec W 62:1221-2 D 13 '13

Textile fabrics. *See* Textile industry and fabrics**Textile factories**

- Air conditioning for textile mills. F. W. Parks. Ind Eng 13:307-8 J1 '13; Same, with discussion. Am Soc M E J 35:1036-42 Je '13
- Power matters in textile mills. F. W. Dean. Power 37:650-1 My 6 '13
- Power plants of textile mills. J. A. Stevens. plans Ind Eng 13:7-12 Ja '13
- Power plants of textile mills: discussion of paper by J. A. Stevens. Am Soc M E J 35: 632-6 Ap '13
- Principles of industrial lighting; requirements of the textile industries. il Ind Eng 13:15-8 Ja '13

See also Cotton mills; Textile industry and fabrics

Textile industry and fabrics

- Airship envelope fabric. Sci Am S 75:270 Ap 26 '13
- Testing and properties of textile materials. J Fr Inst 175:332-3 Mr '13

Waterproofing of textile fabrics by the use of aluminium salts and of bichromate-gelatin. J. Blair. Sci Am S 76:83-4 Ag 9 '13

See also Fireproof textiles; Silk cotton; Woolen and worsted manufacture

Textiles, Fireproof. *See* Fireproof textiles**Thawing**

- Electric thawing of frozen water pipes. plan Elec W 61:460-1 Mr 1 '13
- Electric thawing of frozen water pipes. plan Eng Rec 68:272 S 6 '13
- Electrical device for thawing out frozen water pipes. C. P. Hoover. il Eng Rec 67:217-8 F 22 '13
- Muck thawing by solar heat. il plan Eng & Min J 95:706-7 Ap 5 '13
- Self-contained electric pipe-thawing outfit. Elec W 61:420 F 22 '13
- Substitutes for stream thawing in the Yukon. Eng & Min J 95:660 Mr 29 '13
- Thawing frozen water service pipe under difficulties. G. N. Nelson. Dom Eng 65:343 D 13 '13
- Thawing powder underground. A. J. Hewitt. plan Eng & Min J 95:275 F 1 '13
- Thawing water pipes by electricity in Evanston. C. C. Saner. il Munic Eng 44:355-6 Ap '13

Theater buildings. *See* Theaters**Theaters**

- Collapse of Orpheum theater, New York city. Eng Rec 68:569 N 22 '13
- Contributions to the history of the English playhouse. H. Bell. il Arch Rec 33:262-7, 359-68 Mr-Apr '13
- Failure of Orpheum theater building, New York city. plan Eng N 69:234 Ja 30 '13
- Intimate theatre idea. C. L. Hagen. il plan Arch & Bldg 45:100-9 Mr '13
- Novel project. il Arch Rec 33:474-5 My '13
- Structural details in the Harris theater. plans Eng Rec 67:52-3 Ja 11 '13
- Unusual girder work in a Pittsburgh theater. il plans Eng N 70:1230-1 D 18 '13

See also Stage mechanism; Stairways

Heating and ventilation

- Picture theatre ventilation. diags Heat & Ven 10:39-41 Ag '13
- Theatre ventilation situation in Chicago. Heat & Ven 10:49 O '13
- Ventilation of the Princess theatre, St. Paul. J. Graham. plans Dom Eng 65:105-6 O 25 '13

Lighting

- Colorado Springs theater installation. il Elec W 61:526-7 Mr 8 '13

Thermit

- Thermit for improving steel ingots: revision and successful operation of a former method. H. Goldschmidt. Eng M 44:781-3 F '13
- Thermit for naval use. L. E. Browne. il Sci Am S 76:116 Ag 23 '13
- Use of anti-piping thermit in casting steel ingots. E. A. Beck. diags Am Inst Min E Bul 76:649-56 Ap '13; Same cond. Iron Age 91:545-6 F 27 '13

Thermit welding. *See* Welding**Thermochemistry**

- Thermal expansion of ethyl alcohol and its mixtures with water. N. S. Osborne. U S Bur Stand Bul 9:371-403 Ap 15 '13

Thermo-couples

- Base-metal thermocouples. Met & Chem Eng 11:588-90 O '13
- Modern methods of measuring temperature. R. S. Whipple. Sci Am S 76:292-3 N 8 '13
- Note on cold-junction corrections for thermocouples. P. D. Foote. Met & Chem Eng 11:329-33 Je '13; Same. U S Bur Stand Bul 9:553-65 D 15 '13
- Thermocouples and resistance coils for the determination of local temperatures in electrical machines. J. A. Capp and L. T. Robinson. Am Inst E E Pro 32:702-8 Mr '13
- Tungsten-molybdenum thermo-couple. C. Hering; C. B. Thwing. Met & Chem Eng 11:66-7 F '13

See also Radiomicrometers; Thermopiles

Thermodynamics

New method of analyzing the working processes of reciprocating heat engines. *Ind Eng* 13:272-3 *Je* '13

New tables and diagrams for sulphurous acid. *Hybl. Am Soc M E J* 35:1066-70 *Je* '13

Properties of saturated and superheated ammonia vapor. G. A. Goodenough and W. E. Mosher. *Ill V Eng Exp Sta Bul* 66: 1-94 '13

Properties of saturated and superheated ammonia. W. E. Mosher. *Am Soc M E J* 35: 25-68 *Ja* '13

Specific heats and specific volumes of steam for pressures up to 20 atmospheres and temperatures up to 250 deg. cent. M. Jakob. *Am Soc M E J* 35:545-50 *Mr* '13

See also Entropy; Heat; Steam; Steam engines

Thermoelectricity

Midwinter convention. A. I. E. E., New York, Feb., 1913. *Elec W* 61:515-22 *Mr* 8 '13

See also Pyrometers and pyrometry; Thermo-couples

Thermometers

Absolute pressure thermometer. W. H. Phillips. *il Power* 38:415 *S* 16 '13

Manufacture of thermometers. *il Ind Eng* 13: 108-12 *Mr* '13

Modern methods of measuring temperature. R. S. Whipple. *il diags Sci Am* 8 76:296-9, 313-5 *N* 8-15 '13

Modern methods of measuring temperatures. *il diags Ind Eng* 13:445-7 *O* '13

New calorimetric resistance thermometers. H. C. Dickinson and E. F. Mueller. *il U S Bur Stand Bul* 9:482-92 *D* 15 '13

Practical applications of temperature measurement. R. S. Whipple. *Sci Am* 8 76:366-7 *D* 6 '13

Selection of thermometers for industrial plants. R. S. Whipple. *il Eng M* 46:114-6 *O* '13

Thermometric lag. D. R. Harper, 3d. *diags U S Bur Stand Bul* 8:659-714 *Mr* 1 '13

See also Calorimeters and calorimetry; Entropy; Meteorological instruments; Pyrometers and pyrometry; Temperature

Thermophones

Thermophones for temperature measurement in Kensico dam, Valhalla, N. Y. *Eng Rec* 68:119-20 *Ag* 2 '13

Thermopiles

Construction of thermopiles for monochromatic illuminators. W. W. Coblentz. *J Fr Inst* 175:497-501 *My* '13

Experiments on bismuth thermopiles. W. W. Coblentz. *J Fr Inst* 176:671-6 *D* '13

Thermopiles of recent construction. W. W. Coblentz. *diags U S Bur Stand Bul* 9:12-34 *Mr* 15 '13

Thermoscope

CO₂ thermoscope. *il Power* 38:428 *S* 23 '13

New automatic fire alarm. F. A. J. Fitzgerald. *il J Fr Inst* 176:575-82 *N* '13; *Sci Am* 8 76:397-8 *D* 20 '13

Thermostats

Arrangement of thermostatic regulation apparatus in New York post office. *Heat & Ven* 10:48-9 *Ap* '13

Automatic temperature regulation. J. Graham. *diags Dom Eng* 64:270-2 *S* 6 '13

Inexpensive thermostat and gas regulator. *plan Eng Rec* 67:111 *Ja* 25 '13

Simple electric thermostat. *diag Elec Ry J* 42:149 *JI* 26 '13

Theses, Engineering. *See* Engineering theses**Thiogen process.** *See* Smelting**Third rail**

Report of committee of Am. railway engineering assn. on clearances. *Ry Age* 54:707-8 *Mr* 21 '13

Thompson, Robert A.

Sketch. *por Ry & Eng R* 53:466 *My* 17 '13

Thoroughfares. *See* Roads**Thread cutting.** *See* Screw threads**Thread milling machines.** *See* Milling machines**Threading machines, Pipe.** *See* Pipe threading machines**Thunder-storms**

Electricity of thunder-storms. W. J. Humphreys. *J Fr Inst* 175:241-4 *Mr* '13

Tide power

Tidal waters as a source of power. C. A. Battiscombe. *il Sci Am* 8 76:125-8 *Ag* 23 '13

Ties, Railroad. *See* Railroad ties**Tiffany green solution**

Tiffany finish. *Foundry* 41:103-4 *Mr* '13

Tigre mining company, South America

Report for 1912. *Eng & Min J* 95:1203 *Je* 14 '13

Tiles

Story of hollow-tile. F. Squires. *il Arch & Bldg* 45:92-6 *Mr* '13

Tile protection for intertidal concrete in sea walls. *il Eng N* 70:1178-9 *D* 11 '13

See also Drain tile

Tiles, Concrete. *See* Concrete tiles**Timber**

Bending strength of yellow-pine timber. J. J. Morgan. *Eng Rec* 67:608-9 *My* 31 '13

Bending strength of yellow-pine timber. A. T. North. *Eng Rec* 68:27-8 *JI* 5 '13

Breaking strength of timber. *Eng & Min J* 95:705-6 *Ap* 5 '13

Diminishing timber supply and municipal forests. *Eng N* 70:469 *S* 4 '13

Forest products of the United States: the economic value of our trees. *map Sci Am* 8 75:14-6 *Ja* 4 '13

Government and our national timber: a defense of the present policy. *Sci Am* 8 75: 126-7 *F* 22 '13

Relation of mechanical and physical properties of timber. *Eng & Min J* 95:659 *Mr* 29 '13

Sale of forest reserve timber. *Eng Rec* 67: 345 *Mr* 29 '13

Unit stresses for timber. A. T. North; H. D. Dewell. *Eng N* 70:179-81 *JI* 24 '13

Unit stresses in timber. A. T. North. *Eng N* 70:426-7 *Ag* 28 '13

What is a proper safe unit stress for timber? *Eng N* 69:1335 *Je* 26 '13

See also Acacias; Dry rot; Forests and forestry; Greenheart; Lumber; Trees; Wood

Timber-treating. *See* Wood preservation**Timbering, Mine.** *See* Mine timbering**Time**

Simple method of determining the time. W. H. Pickering. *Sci Am* 8 76:320 *N* 15 '13

Time and the sciences. *Sci Am* 108:446 *My* 17 '13

Time, Standard

How we get standard time. H. T. Stetson. *il maps Sci Am* 8 76:341-2 *N* 29 '13

Time-clocks

Intelligent use of the time-clock. B. Daniels. *Inland Ptr* 50:566-7 *Ja* '13

New methods of distributing time in the shops of the Indianapolis traction & terminal co. *il Elec Ry J* 42:464-5 *S* 20 '13

Time measurement

Universal time keeping. *Sci Am* 109:450 *D* 13 '13

Time signals

American-French radio time signal experiments. *Sci Am* 109:455 *D* 13 '13

Time signals by wireless telegraphy: hourly signals transmitted from the Eiffel tower and the accurate determination of longitude by these means. G. Ferrié. *Eng M* 45: 719-21 *Ag* '13

Time study

How to make a time study. C. E. Knoeppel. *Ind Eng* 13:501-5 *D* '13

Notes on time studies. R. W. Langley. *Ind Eng* 13:385-6 *S* '13

Time study. F. W. Taylor. *Am Soc M E J* 35:492-6 *Mr* '13

Time study and task work explained. S. E. Thompson. *Iron Age* 91:1010-2 *Ap* 24 '13; *Same*. *Ind Eng* 13:347-50 *Ag* '13

Time study *Continued.*

Why and how of making a time study. *Iron Age* 92:854-5 O 16 '13

Time tables

Timetable making in Buffalo. *Elec Ry J* 42: 504-5 S 27 '13

Timekeepers. See Clocks; Time clocks; Watch making; Watches**Tin**

Sheet and tin plate trades in 1912. *B. E. V. Luty. Iron Age* 91:85-6 Ja 2 '13

Tin industry in 1912. *Eng & Min J* 95:76-7 Ja 11 '13

Tin situation in Bolivia. *H. Bancroft. Am Inst Min E Bul* 81:2311-27 S '13

Topaz and stream tin in Mason county, Texas. *H. C. Meyer. Eng & Min J* 95:511-2 Mr S '13

See also Bronze; Metals; Pewter; Tinning

Tin dredging

Dredging for tin in Alaska. *Eng & Min J* 95: 261 F 1 '13

Tin metallurgy

Chenhall's tin-extraction process. *Eng & Min J* 96:771-2 O 25 '13

Cornish tin dressing and the vanning assay. *Met & Chem Eng* 11:106 F '13

Electric tin smelting. *Eng & Min J* 95:818 Ap 19 '13

Empirical vs. exact methods. *Met & Chem Eng* 11:63-4 F '13

Historical note on tin smelting. *Eng & Min J* 96:495-6 S 13 '13

Smelting tin ore. *Met & Chem Eng* 11:593-4 O '13

Tin mining in Federated Malay states. *Eng & Min J* 95:883-4 My 3 '13

Tin mines and mining

South America through Yanqui eyes. *Eng & Min J* 95:623-4 Mr 22 '13

Tin mining in South Africa. *Eng & Min J* 96:985 N 22 '13

Tinning

Machine for tinning sheet metal. *L. J. Krom. Metal Ind n s* 11:382 S '13

Tinning of copper. *L. J. Krom. il Metal Ind n s* 11:122-3 Mr '13

Tires

Report on the Stilwell derailment, Chicago, Cleveland, Cincinnati & St. Louis Ry. *il Ry & Eng R* 53:1016-7 N 1 '13

Wreck caused by a broken tire. *il Ry Age* 55:814-6 O 31 '13

Tires (automobile)

Akron: where 20,000 tires are made daily. *L. V. Spencer. il Automobile* 28:1287-91 Je 26 '13

Comprehensive tests to develop data for improvements of springs and tires. *Automobile* 29:218-9 Ag 14 '13

Constant inflation means long tire life. *Automobile* 28:1316-7 Je 26 '13

Construction features in cars which cause excessive wear and early blowouts of tires. *diags Automobile* 29:508 S 18 '13

Heavy truck tires. *Munic Eng* 45:176-7 Ag '13

Horizontal tire rigidity. *J. B. Dunlop. Automobile* 29:816 O 30 '13

Iron-tired truck wheels. *diags Automobile* 28: 719-20 Mr 27 '13

Keeping track of tires: sales records and other forms. *Automobile* 28:1304-5 Je 26 '13

Low inflation on bad roads. *J. B. Dunlop. Automobile* 29:692-3 O 16 '13

Making of a pneumatic automobile tire. *E. R. Hall. il Sci Am* 108:32-3 Ja 11 '13

Making of a tire casting. *il Automobile* 29: 56-61 Jl 10 '13

Making repairs on inner tubes. *Automobile* 29:71 Jl 10 '13

Making sheet rubber. *il Automobile* 29:20-5 Jl 3 '13

Motor tire wear in various cities. *Munic Eng* 11:111-2 My '13

Multi-cellular tire. *Sci Am S* 75:19 Ja 11 '13

New tire for motor trucks. *C. F. Jenkins. il Sci Am* 108:228 Mr 8 '13

Overloading ruins solid truck tires. *Automobile* 28:1316-7 Je 26 '13

Pneumatic tires. *P. W. Litchfield. Automobile* 28:1225-7 Je 12 '13; Same. *Sci Am S* 76:10-1 Jl 5 '13

Practical developments in tire industry. *J. B. Dunlop. Automobile* 29:1101 D 11 '13

Solid tires; treads designed for commercials. *il Automobile* 28:480-6 F 13 '13

Tire progress shown by anti-skid treads. *il Automobile* 28:366-70 Ja 30 '13

Tire repairs—roadside and garage. *J. E. Schipper. il Automobile* 29:195-9, 546-9 S 18-25 '13

Tires for electric vehicles. *Elec W* 61:1402-3 Je 28 '13

Tires lasted 3,500 miles. *Automobile* 29:325 Ag 21 '13

See also Automobiles—Wheels

Tires (locomotive)

Chrome vanadium driving wheel tires. *il Am Eng* 87:15-7 Ja '13

Service records of vanadium steel driving wheel tires. *Ry & Eng R* 53:1133 D 6 '13

Steel-tired, forged and rolled-steel wheels. *M. D. Hayes. Elec Ry J* 42:1101-4 N 22 '13

Tismar engine

Engine that will run on several fuels. *il Sci Am* 108:228-9 Mr 8 '13

Titanium

Cleansing effect of titanium on cast iron. *B. Stoughton. Iron Tr R* 52:473-4 F 20 '13

Ferro-titanium alloy in the manufacture of iron and steel. *C. V. Slocum. il Sci Am* 108: 512 Je 7 '13

Influence of titanium on Bessemer steel. *Iron Tr R* 52:801-2 Ap 3 '13

Tests of titanium rails. *il diags Ry & Eng R* 53:872-4 S 13 '13

Titanium and silicon in rail steel. *Eng Rec* 67:390-1 Ap 5 '13

Titanium as used in steel making. *E. F. Lake. Met & Chem Eng* 11:144-6 Mr '13

Titanium for rail steel. *Met & Chem Eng* 11: 724-5 D '13

Use of titanium. *Foundry* 41:150-1 Ap '13

Titusville light & power company, Titusville, Pennsylvania

Gas-engine-driven central station. *il plan Elec W* 61:291-3 F 8 '13

Tobacco

Antiseptic properties of tobacco. *Sci Am* 108: 401 My 3 '13

See also Smoking

Tokio, imperial university

Japanese engineering college. *Eng N* 69:670-1 Ap 3 '13

Toledo, Ohio**Rapid transit**

Low fare ordinance passed in Toledo. *Elec Ry J* 42:1201 D 6 '13

Streets

Street paving in Toledo. *il Munic Eng* 45:251-2 S '13

Tombs

Revival of French Gothic architecture: a mausoleum after St. Hubert's chapel. *L. R. McCabe. il Arch Rec* 34:202-12 S '13

Tonnage

Block unit system versus net tonnage measurement. *Int Marine Eng* 18:511-2 D '13

Tonnage rules for Panama canal tolls. *Ry & Eng R* 53:1099-100 N 29 '13

See also Railroads—Train load

Tonopah, Nevada

Silver cyanidation at Tonopah. *H. A. McGraw. il Eng & Min J* 95:413-7, 455-9, 503-6 F 22-Mr 8 '13

Tonopah-Belmont development company

Report for year ended Feb. 28, 1913. *Eng & Min J* 95:1009 My 17 '13

Tool holders

Floating reamer-holders. *A. A. Dowd. il Mach* 19:835-8 Jl '13

Making the Red-E tool-holder. *C. L. Lucas. il Mach* 19:711-6 My '13

Tool posts

Turret boring and turning tool post. *il diag Iron Age* 91:709 Mr 20 '13

Tool steel

American railway tool foremen's assn., 5th annual convention, Chicago, July, 1913. Elec Ry J 42:147-8 JI 26 '13

American railway tool foremen's assn., 5th annual convention, Chicago, July, 1913. Ry & Eng R 53:712-3 JI 26 '13

Buying tool steel for the United States navy. L. H. Kenney. Iron Tr R 52:689-91 Mr 20 '13

Cast steel in the blacksmith shop. G. F. Hinckens. Ry Age (Mech ed) 87:492-3 S '13

Hardening of carbon and low-tungsten tool steels. S. N. Brayshaw. Il Eng M 44:40-8, 222-32, 348-53 O-D '12

Methods of testing tool steels for the U. S. navy. Ind Eng 13:278-9 Je '13

Microscopic study of high speed tool steels. Il Iron Age 91:189-91 Ja 16 '13

Modern tool steels and high-speed tool alloys. G. S. Armstrong. Il Eng M 45:833-42; 46: 63-76, 194-200, 401-15 S-D '13

Relation of price of tool steel to manufacturing costs. F. B. Jacobs. Mach 19:380-1 Ja '13

Scrap tool steel reclamation methods. J. J. Sheehan. plan Iron Tr R 53:253-4 Ag 7 '13; Same. Ry Age (Mech ed) 87:431-2 Ag '13

Test that counts. W. A. Webb. Mach 20:127 O '13

Tool steel for the United States navy. Iron Age 91:839-41 Ap 3 '13

Tool steel for the United States navy. L. H. Kenney. Mach 19:863-5 JI '13

Tool steel from a salesman's point of view. C. M. Bigger. Iron Age 91:706-8 Mr 20 '13

See also Machine tools; Steel metallurgy

Tools

American railway tool foremen's assn. 5th annual convention. Ry Age 55:158-9, 178 JI 25-Ag 1 '13

American railway tool foremen's assn. 5th annual convention; papers. Ry Age (Mech ed) 87:431-6 Ag '13

Automatic screw machine equipment. D. T. Hamilton. Il diags Mach 19:457-62, 535-9 F-Mr '13

Eliminating chance in hardening tools. diags Ry & Eng R 53:765-6 Ag 9 '13

Sharpening edge tools. W. D. Graves. Il Sci Am 108:143 F 8 '13

Tool room in scientific management. R. T. Kent. Il Iron Age 92:496-9 S 4 '13

See also Diamond tools; Files and rasps; Machine tools; Saws; Tool steel

Tools, Machine. See Machine tools**Tools, Pneumatic. See Pneumatic tools****Topaz**

Topaz and stream tin in Mason county, Texas. H. C. Meyer. Eng & Min J 95:511-2 Mr 8 '13

Topographical drawing

Methods of plotting contours. R. C. Hardman. Eng Rec 67:536 My 10 '13

Topographical maps

Topographic maps for the mining engineer. E. G. Woodruff. Am Inst Min E Bul 78: 1001-10 Je '13; Discussion. 83:2714-8 N '13

U. S. Geological survey topographic maps for the civil and mining engineer. E. G. Woodruff. Eng N 70:384-5 Ag 21 '13

See also Topographical drawing; Topographical surveying

Topographical surveying

Cincinnati topographic survey. H. C. Mitchell. Il plan Eng N 69:652-6 Ap 3 '13

City topographic surveys. R. A. MacGregor; H. C. Mitchell. Eng N 69:1015-6 My 15 '13

Geographical charts prepared by aerial photography. G. Kammerer. Il Sci Am S 75: 300-1 My 10 '13

Short range plane table. Eng & Min J 95: 371-2 F 15 '13

Topographical surveys for drainage districts. W. A. Birket. Eng N 69:352-3 F 20 '13

U. S. Geological survey topographic maps for the civil and mining engineer. E. G. Woodruff. Eng N 70:384-5 Ag 21 '13

See also Photographic surveying; Topographical maps

Tornadoes

Effect of the Omaha tornado on structures. A. C. Arend. Il Eng N 69:888-900 My 1 '13

Omaha and Terre Haute tornadoes. Il Elec Ry J 41:638-9 Ap 5 '13

Recent storms and floods. Il Sci Am 108:315 Ap 5 '13

Tornado and flood damage at Terre Haute, Ind. M. A. Howe. Il Eng N 69: 738-9 Ap 10 '13

Tornado of March 23 at Omaha, Neb. Il map Eng N 69:690-2 Ap 3 '13

Toronto, Ontario**Harbor**

New harbor and waterfront works. maps Eng N 69:1116-9 My 29 '13

Rapid transit

Proposed sale of Toronto utilities to the city. Elec Ry J 42:941-2 O 25 '13; Same. Elec W 62:832-3 O 25 '13

Report on Toronto conditions. Elec Ry J 41: 368-70 My 31 '13

Valuation of Toronto public utilities. Elec Ry J 42:1053-4 N 15 '13

Torpedo boat destroyers

Destroyer of destroyers. Sci Am 109:278 O 11 '13

Torpedo boats

Emergency repairs to a destroyer. J. F. Hellweg. Sci Am 109:180 S 6 '13

See also Submarine boats; Torpedoes

Torpedoes

Mining the air with balloon torpedoes. H. Bannerman-Phillips. Sci Am 108:538 Je 14 '13

Modern automobile torpedo; the story of a great invention. R. G. Skerrett. Il Sci Am 108:8-9 Ja 4 '13

See also Torpedo boats

Torque

Basis for measuring lathe capacity: the value of torque at one foot radius. L. R. Pomeroy. diag Am Eng 87:132-6 Mr '13

Signification of torque. F. Van Winkle. diags Power 37:319-20 Mr 4 '13

Torrance, California

Industrial city of Torrance, Cal. R. Bennett. Il map plans Eng N 70:870-3 O 30 '13

Tory, Geoffrey

Printers of note. W. C. Bleloch. Inland Ptr 51: 841-2 S '13

Towboats and towing

Experimental tugboats: the Fulton and the Froude. Il Sci Am S 75:12-3 Ja 4 '13

Experiments on the Fulton and the Froude. C. H. Peabody. plans Int Marine Eng 18: 7-13 Ja '13

Mietz & Weiss motor tug boat. Il Int Marine Eng 18:23-4 Ja '13

Motor towboat "Breakwater". diags Int Marine Eng 18:534-5 D '13

Motor tug Natilie built to do the work of two steel steam tugs. Il Int Marine Eng 18: 30 Ja '13

Ocean-going twin screw salvage tug, Cario-ca for the Brazilian government. Il plan Int Marine Eng 18:425-7 O '13

Shallow draft tug fitted with six propellers. F. M. Van Brakel. Int Marine Eng 18:473-4 N '13

Steel tug Frederick W. Robbins and car floats for the Erie railway service. Il Int Marine Eng 18:476 N '13

Towboat Narragansett, general utility boat. Il Int Marine Eng 18:31-2 Ja '13

Towboat propeller wheels. C. S. Lynch. Int Marine Eng 18:359-60 Ag '13

Twin-screw tug Guarany for Brazilian navy. F. C. Coleman. Il Int Marine Eng 18:333-4 Ag '13

Towers

Towers of Manhattan and notes on the Woolworth building. M. Schuyler. *il Arch Rec* 33:98-122 F '13

See also Range towers; Water towers

Towers, Steel

Analysis of steel towers: determination of action of wind loads and design of tower bents. I. Nelson. *Eng Rec* 68:302-3 S 13 '13

See also Towers, Transmission

Towers, Transmission

Hysteresis and eddy-current losses in transmission towers. Elec W 62:1108-9 N 29 '13

60,000-volt steel-tower line construction in southern California. H. W. Dennis. *il diags Elec W* 62:281-7 Ag 9 '13

Strength of transmission towers. R. D. Coombs. *Elec W* 62:544 S 13 '13

Wireless telegraph transmission towers. J. Stedman. *il Iron Age* 92:891-2 O 23 '13

Trachoma. *See* Conjunctivitis

Tracing devices

Tracing through opaque paper. M. A. T. Schwennesen. *Sci Am S* 76:393 D 20 '13

Track. *See* Electric railroads—Track; Mine tracks; Railroads—Track; Rails; Street railroads—Track

Track, Railroad. *See* Railroads—Track

Track inspection

Track inspection car; Erie R. R. *il Eng N* 70: 660-1 O 2 '13

Track jacks

Old object lesson on track jacks recalled. *Eng N* 69:524-5 Mr 13 '13

Track labor problem. F. L. Jandron. *Ry & Eng R* 53:369-71 Ap 19 '13

Track scales

Heavy track scale at Granite Quarry, near Salisbury, S. C. *il diags Ry Age* 54:603-4 Mr 19 '13

Inspecting track scales for the U. S. government: test car and equipment. H. T. Wade. *il Sci Am* 109:168 D 20 '13

Necessity of accurate railway track scales. *Sci Am* 109:210 S 13 '13

Report on track scales by the Interstate commerce commission. *Ry & Eng R* 53:757-9, 763-4, 807-10 Ag 9, 23 '13

Scale test car of the United States Bureau of standards. *il Ry Age* 55:285-6 N 21 '13

Scale-testing car of the Bureau of standards. A. H. Emery, jr. *il Eng Rec* 68: 460 O 25 '13

Scale testing car, United States Bureau of standards. *il diags Ry & Eng R* 53:1098-9 N 29 '13

Standard track scale of the Pittsburgh & Lake Erie. *il Ry Age* 55:103-5 Jl 18 '13

Track scale specifications and rules. *Ry Age* 51:1562-5 Je 20 '13

Weighing half a million freight cars. *il Sci Am* 109:389 N 22 '13

Track tanks. *See* Railroads—Water supply

Trackless trolley

Trackless trolley bus at Merrill, Wis. *il Elec Ry J* 41:1080 Je 14 '13

Trackless trolley lines in Austria. F. C. Perkins. *il Munic Eng* 41:446-7 My '13

Trackless-trolley motor for assisting haulage on a steep-grade street at Altona, Germany. J. P. Schroeter. *il Eng N* 70:253 Ag 7 '13

Trackless trolleys in England. *il Elec Ry J* 42:653 O 4 '13

Tracks, Mine. *See* Mine tracks

Trackways

Plate-railways for road and steam traffic. G. N. Fell. *Eng M* 44:98-101 O '12

Traction engines

Advantages of tractor transportation. *il Sci Am* 109:168 Ag 30 '13

Details of engine test building of M. Rumely co., Laporte, Ind. *il plans Eng Rec* 67: 42-3 Ja 11 '13

Economics of the farm tractor. P. S. Rose. *il Sci Am* 108:114-5 F 1 '13

Problem of the small farm tractor. L. W. Ellis. *il Sci Am* 108:518-9 Je 7 '13

Problem of the small tractor. *Sci Am* 108:534 Je 14 '13

Small tractor. *Sci Am* 109:254 O 4 '13

Three-wheeled tractor. *il Sci Am* 108:205 Mr 1 '13

Tractors for farm service; Soissons contest. *il Sci Am S* 76:308 N 15 '13

Winnipeg tractor trials, 1913. L. W. Ellis. *Sci Am* 109:201 S 6 '13

See also Agricultural machinery; Electric tractors; Gas tractors; Motor plows

Tractive resistance

Comparison of freight train and canal boat resistance. H. A. Houston. *Ry Age* 55:958 N 21 '13

See also Locomotives—Tractive effort; Train resistance

Tractors. *See* Electric tractors; Gas tractors; Traction engines

Trade agreements

Settlement of Indianapolis strike. *Elec Ry J* 42:1059-61 N 15 '13

See also Arbitration, Industrial

Trade-marks

Goodwill, patents, trade-marks, copyrights and franchises. P. J. Esquerré. *J Account* 15:29-30 Ja '13

Legal aspects of trademarks and trade names. A. L. H. Street. *Iron Age* 92:474-5 Ag 28 '13

Trade-marks in export. H. Kahler. *Am Ind* 13:21-3 My '13

See also Patents

Trade papers

Elbert Hubbard on trade papers. *Heat & Ven* 10:49-50 S; 47-8 O; 42-3 N; 40-1 D '13

Value of trade papers. W. J. Woolley. *Dom Eng* 64:40-2 Jl 12 '13

Value of trade paper in business. G. D. Crain, jr. *Dom Eng* 64:157-8 Ag 9 '13

See also House organs

Trade schools

Continuation vs. trade schools. H. E. Miles. *Am Ind* 13:23 Jl '13

Public trade schools or shop schools—which? P. Kreuzpointner. *Am Mach* 38:831-2 My 15 '13

Trade school question. E. H. Fish. *Am Mach* 38:867-8 My 22 '13

See also Corporation schools; Industrial education

Trade unions

American federation of stockholders proposed. *Iron Age* 91:1552-3 Je 26 '13

Clause in the Sundry civil bill regarding use of public funds to enforce Sherman act against labor organizations. J. A. Emery. *Am Ind* 13:13-4 My '13

Labor unions and the railroads. J. O. Fagan. *Ry Age* 54:1320-2 Je 13 '13

Let organized labor purge itself! *Am Ind* 13: 7-11 F '13

Peril of the labor-unions. *Am Ind* 13:32 Mr '13

Present attitude and activities of organized labor. *Iron Age* 92:1219-23 N 27 '13

Trade union accounting. A. E. Carpenter. *J Account* 16:440-2 D '13

What the union has done for Butte. W. Lakeland. *Eng & Min J* 96:511-2 S 13 '13

See also Arbitration, Industrial; Strikes

Trade waste. *See* Waste products

Traffic. *See* Road traffic; Street traffic

Traffic club of Pittsburg

11th annual dinner, Jan. 30, 1913. *Ry & Eng R* 53:116-7 F 8 '13

Trailers. *See* Street cars

Trailers, Automobile. *See* Automobile trailers

Train dispatchers' association of America

26th annual convention, Los Angeles, Cal. June, 1913. *Ry Age* 55:15 Jl 4 '13

Train dispatching

Dictaphone in dispatching. *il Elec Ry J* 42: 74 J1 12 '13

Improved cab signalling and dispatching. *P. J. Simmen. il Eng M* 44:422-5 D '12

System of car supply and train dispatching. London & Northwestern Ry. plan *Ry & Eng R* 53:953-4 O 11 '13

Telephone train dispatching, Lehigh valley R. R. *Ry & Eng R* 53:465 My 17 '13

Telephones on the Pennsylvania railroad. J. C. Johnson. *Ry Age* 54:1176-7 My 30 '13

Train-order signal controlled by the train dispatcher. *il Eng N* 69:1-2 Ja 2 '13

Wireless telegraphy for railway trains. *Eng N* 70:1246 D 18 '13

Train energy. See Train movement; Train resistance

Train indicators

National train indicators. *il Ry Age* 54:296-7 F 14 '13

Train lighting. See Car lighting

Train load. See Railroads—Train load

Train movement

Approximate predetermination of train energy. W. A. Del Mar and D. C. Woodbury. *Elec Ry J* 42:1055-6 N 15 '13

Economical limits of grade reduction. W. L. Webb. *Ry Age* 54:750-2 Mr 28 '13

Predetermination of energy to propel cars or trains. *Elec Ry J* 42:1166-7 D 6 '13

Predetermination of train energy. C. T. Hutchinson. *Elec Ry J* 42:1295-6 D 20 '13

Principles of electric railroading. C. L. de Muralto. *Ry Age* 54:808-9, 1031-2; 55:230-1, 418-9, Ap 4, My 9, Ag 8, S 5 '13

See also Train resistance

Train resistance

Application of B. & O. dynamometer tests to tonnage rating. R. N. Begien. *Ry Age* 54:642-8 Mr 20 '13; Same cond. *Ry & Eng R* 53:322-4 Ap 5 '13

Comparison of freight train and canal boat resistance. H. A. Houston. *Ry Age* 55:958 N 21 '13

Train resistance tests. Southern Pacific Ry. *Eng N* 69:410-1 F 27 '13

See also Train movement

Train service

Report of joint committee of Am. electric railway engineering and Transportation & traffic associations on train operation for interurban service. *Elec Ry J* 42:782-3 O 15 '13

Train sheds. See Railroads—Terminals

Train stops. See Railroads—Automatic stop

Train tonnage. See Railroads—Train load

Training ships

Chinese training cruiser Ying Swei. F. C. Coleman. *il Int Marine Eng* 18:231-2 Je '13

Training ship for the Russian volunteer fleet. F. C. Coleman. *il Sci Am S* 76:49 J1 26 '13

Trainmen. See Railroads—Employees

Trains, Armored. See Armored trains

Tramways. See Street railroads

Transformers. See Electric transformers

Transit. See Rapid transit

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Transmission towers. See Towers, Transmission

Transmutation of elements

Appearance of helium and neon in vacuum tubes. J. J. Thomson. *Sci Am S* 75:150 Mr 8 '13

Birth of the atom: has matter been synthesized. *Sci Am S* 75:151-5 Mr 8 '13

Molecular structure and the origin of the elements. *Sci Am* 108:154 F 15 '13

New alchemy. *Eng Rec* 67:170 F 15 '13

Production of complex atoms from simpler ones or from ultimate electrons. *Elec W* 61: 332-3 F 15 '13

Transport ships

"Kangaroo," transport ship for submarines. *il Sci Am S* 76:356 D 6 '13

Transportation

Aspects of transportation. J. E. Kuhn. *Sci Am S* 76:138-9, 150-1, 166-7 Ag 30-S 13 '13

Early transportation. *il Inland P'tr* 50:898-901 Mr '13

Installing a mining plant in Latin America. E. W. Perry. *il Eng M* 44:721-31 F '13

Lines of the U. S. steel corporation from the Minnesota mines to the Pittsburgh mills. *il map Ry Age* 55:486-92 S 19 '13

Locating the friction in our transportation system. R. H. Rogers. *il Sci Am S* 75:244 Ap 19 '13; Same cond. *Ry & Eng R* 53:212 Mr 8 '13

Motor transportation as an aid to industrial economy. R. W. Hutchinson. *il Eng M* 44: 526-46 Ja '13

Organization for handling refrigeration transportation. J. S. Leeds. *Ry Age* 55:569-71 S 26 '13; Same. *Ry & Eng R* 53:930-1 O 4 '13

Transporting a 46-ton cover plate. *il Sci Am* 109:307 O 18 '13

Transporting heavy machinery in Mexico. H. R. Conklin. *il Eng & Min J* 95:501-2 Mr 8 '13

Transportation of lumber. *Ry & Eng R* 53: 822-3 Ag 30 '13

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Transportation and car accounting officers. Association of. See Association of transportation and car accounting officers

Traps. See Plumbing—Traps; Steam traps

Travel

Around the world in thirty-six days. *Ry Age* 55:276 Ag 15 '13

Traveling engineers' association

21st annual convention, Chicago, August, 1913. *Ry & Eng R* 53:779-81, 785-8 Ag 16 '13

21st annual convention discusses operating department and fuel economy; superheaters; brick arches; smoke prevention; locomotive brake equipment. *Ry Age* 55:331-8 Ag 22 '13; *Ry Age* (Mech ed) 87:467-78 S '13

Trees

Decline of native forest trees in cities. M. H. West. *Sci Am* 108:363 Ap 19 '13

Peculiarities in the growth of trees. *il Sci Am* 109:14 J1 5 '13

See also Forests and forestry; Sap; Timber; Wood; also names of trees, e. g. Acacias; Larch

Trees, Dwarf

How to make dwarf trees. *Sci Am* 108:432 My 10 '13

Trellis work

Building trellises. *il plan Arch & Bldg* 45: 391-4, 421-4 O-N '13

Trenches

Mechanical trench filling. G. M. Gest. *Munic Eng* 45:494 N '13

Mechanical trench tamping. *il Munic Eng* 44: 569-71 Je '13

Pipe-laying derrick and power backfiller for trench work. *il Eng N* 69:360 F 20 '13

Tamping machine for backfilling trenches. *il Eng N* 69:361-2 F 20 '13

Trenton, New Jersey

Paving in Trenton under the new commission. H. F. Harris. *il Munic Eng* 44:234-8 Mr '13

Trespass

Smuggler-Union and Liberty Bell case in U. S. Circuit court of appeals. R. W. Raymond. *Eng & Min J* 95:1212-4 Je 14 '13

Trestles

Construction trestles with old rails for stringers. plans *Eng N* 70:814 O 23 '13

Trestles—Continued.

- High flume trestle at Oakley, Idaho. A. M. Korsmo. *il plan Eng Rec 67:377 Ap 5 '13*
 Long life of untreated timber in trestles. *Eng Rec 68:542 N 15 '13*
 Newark Bay trestles rebuilt in twelve days. *Ry Age 55:24 Jl 4 '13*
 Old rails as trestle stringers. *il Eng & Min J 96:923 N 15 '13*
 Reinforced-concrete coal trestle at Gilbertville, Mass. *il plan Eng Rec 67:307 Mr 15 '13*
 Report of the committee of American railway engineering assn. on wooden bridges and trestles. *Ry Age 54:617-20 Mr 20 '13*
 Tabulation of trestle bent dimensions. C. Kimball. *diag Eng & Min J 95:1145 Je 7 '13*
 Temporary structures for supporting tracks during the construction of permanent work, sewers, etc. *Ry Age 55:787-8 O 24 '13*
 Wooden trestle bridge carried on timber beams across Baker river, Wash. *il Eng N 69:1205-6 Je 12 '13*

See also Bridges

Trigonometry

- Trigonometry. (Engineers' study course)
 Power 38:766-7, 800-1, 835-6, 866-8, 902-3, 934-5 N 25-D 30 '13
See also Logarithms; Surveying

Trinity gold mining & reduction company

- Report for year ended Nov. 30, 1912. *Eng & Min J 95:1205 Je 14 '13*

Triplexing process. *See Steel metallurgy***Trolley, Trackless.** *See Trackless trolley***Trolley lines.** *See Electric railroads***Trolley poles.** *See Poles, Concrete***Trollhättan, Sweden**

- Hydroelectric plant at Trollhättan. *il plan Elec W 61:89-94 Ja 11 '13*

Tropical hygiene

- Regulation of the heat of the body in hot climates. *Sci Am S 76:23 Jl 12 '13*
 Teaching the tropics how to live. J. H. Verloop. *Sci Am 109:211 S 13 '13*

Troughs, Concrete

- Concrete in the grazing country. *il Concrete Cem 3:167-8 O '13*

Troy, New York

- Troy union station depressed concourse. J. R. Taft. *Eng Rec 68:691-2 D 20 '13*

Troy, Ohio

- Flood protection. maps *Eng N 70:1292-4 D 25 '13*

Trucks

- Automatic truck decreases the cost of shop transportation. R. T. Kent. *il Ind Eng 13: 99-102 Mr '13*
 Automatic trucks. *il Ind Eng 13:219-21 My '13*
 Cost data for horse-drawn and electric trucks. *Eng Rec 67:429-30 Ap 19 '13*
 Cost estimates of horse and motor trucks. J. Ritchie, Jr. *il Sci Am 108:70-1 Ja 18 '13*
 Four new cars for industrial plant use. *il Iron Age 92:1103 N 13 '13*
 Horse trucking costs estimated by a team owners' association. *Sci Am 108:382 Ap 26 '13*
 New model Miller truck. *diags Ind Eng 13: 265-7 Je '13*
 Truck for moving heavy machine tools. *il Mach 19:6 S '12*
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- Bridge trusses with uniform T-shape members. *plan Eng Rec 67:202 F 22 '13*
 Concourse roof, Grand Central terminal, New York city. *plans Eng Rec 67:210-1 F 22 '13*
 General method for drawing influence lines for stress in simple trusses. M. A. Howe. *Eng N 69:1227-31 Je 12 '13*

- Large arch-truss drill-hall, for University of Illinois. *il plans Eng N 70:1182-5 D 11 '13*
 Long-span rolling-mill roof truss of Republic iron and steel co., Youngstown, O. *il plan Eng Rec 68:164 Ag 9 '13*
 Roof trusses of new Rochester, N. Y., passenger station. *il diag Eng Rec 68:666 D 13 '13*

Special rolled members for short span bridge trusses. *Eng Rec 67:198 F 22 '13***Steelwork of the Broadway arsenal, Buffalo.** *il plan Eng Rec 67:391-2 Mr 15 '13***Stress coefficients for roof trusses; with data sheet supplement.** C. E. Shirmmer. *Mach 20: 23-4 S '13***Tunkhannock viaduct construction on D., L. & W. relocation.** *il Eng Rec 68:594-6 N 29 '13*

See also Bridges; Girders; Roofs; Strains and stresses

Trusts

- Government's attitude toward the American smelting & refining co. *Eng & Min J 96: 1203-4 D 27 '13*
 Interstate commission investigation of American telephone & telegraph company. *Elec W 61:186 Ja 25 '13*
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Tsetse flies

- Sleeping death: the scourge of Africa. D. A. Willey. *il Sci Am S 76:104-6 Ag 16 '13*
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Tuberculosis

- Friedmann's new tuberculosis remedy. H. J. Archard. *Sci Am 108:210 Mr 1 '13*
 Misapprehension as to the novelty of the Friedmann treatment. *Sci Am S 75:183 Mr 22 '13*

Tubes

- Elastic corrugated piping. *il Power 37:815-6 Je 10 '13*
 Improved form of corrugated tubes. *il Iron Age 91:1125 My 8 '13*
 Improved manufacture of seamless tubes. *diags Mach 19:334 Ja '13*
 New medium for manufacturing seamless metal tubing. *Tubal. Metal Ind n s 11:248-30 O '13*
 Stress analysis of circular tubes. B. Hauke- lid. *Eng Rec 67:669-72; 68:674-6 Je 14, D 13 '13*
 Tools for fitting tubes together. *diags Mach 19:468 F '13*
See also Flanges; Pipes

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- Chemistry of tungsten. C. Baskerville. *Met & Chem Eng 11:319-20 Je '13*
 Emission of electrons from tungsten at high temperatures. O. W. Richardson. *Sci Am S 76:102-3 Ag 16 '13*
 Hardening of carbon and low-tungsten tool steels. S. N. Brayshaw. *il Eng M 44:40-8, 222-32, 348-53 O-D '13*
 Making drawn-tungsten filaments. *Elec W 61:1018-9 My 17 '13*
 Tungsten and molybdenum—their thermal emf. E. F. Northrup. *Met & Chem Eng 11:45 Ja '13*
 Tungsten in Boulder county, Colorado. L. A. Palmer. *il Eng & Min J 96:99-105 Jl 19 '13*
 Tungsten in Colorado in 1912. R. D. George. *Eng & Min J 95:186-7 Ja 18 '13*
 Tungsten ore in Burma. *Eng & Min J 96:778 O 25 '13*

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- Electric carrier for mail or package freight. *il Eng Rec 68:387 O 4 '13*
 Electric carrier railways for rapid transfer of mail and express. *il Eng N 70:637-9, 702-4 O 2-9 '13*
 Electric carrier system. *il Ry Age 55:624-5 O 3 '13*
 New mail carrying railway: a parcels post tunnel. *il Sci Am 109:263 O 4 '13*
 Parcels post tunnel railway. *il Sci Am 108: 4 Ja 4 '13*

Tunnel ventilation

- Ventilation of subway tunnels. *Ry Age* 54: 726-9 Mr 21 '13
 Ventilation of the Winston tunnel, Chicago & Great Western railway. *il Ry. & Eng R* 53:1082 N 22 '13

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- Aqueduct tunneling methods. *diag Eng & Min J* 95:1291-2 Je 28 '13
 Blount and Hayden mountain tunnels. *il Eng Rec* 68:232-3 Ag 30 '13
 Building Harlem river subway tubes. *il diags Eng Rec* 68:390-1 O 4 '13
 City tunnel and conduits of the Catskill aqueduct. W. E. Spear. *Eng Rec* 68:333-4 S 20 '13
 Concreting a tunnel by compressed air. A. C. Everham. *plans Eng N* 70:208-9 JI 31 '13
 Concreting the Harlem river subway tunnel. *il Eng Rec* 68:404 O 11 '13
 Concreting the Sarles tunnel of the Catskill aqueduct. *il Eng Rec* 68:428-9 O 18 '13
 Construction of Clinchfield extension: building a 35-mile line over the Cumberland range. *il Ry Age* 55:861-8 N 7 '13
 Cost of the Rawley tunnel, Colorado. *Eng & Min J* 95:711 Ap 5 '13
 Difficult tunnel work on the Metropolitan railway of Paris, France. *diags Eng N* 70:504-6 S 11 '13
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 Driving and lining a power tunnel at Tallulah Falls, Georgia. J. H. Graham. *il map Eng Rec* 67:396-9 Ap 12 '13
 Driving with machines on tripods. T. V. K. Swift. *plan Eng & Min J* 95:761-2 Ap '12 '13
 Elimination of timbering in rock tunneling: a proposal. J. F. O'Rourke. *plan Eng N* 69:324-5 F 13 '13
 Elkhorn railway extension. O. K. Morgan. *il plan Eng N* 70:762-7 O 16 '13
 Excavating Lexington avenue subway: unstable soil on section 2A necessitated heavy timbering, special drainage equipment, underpinning and sewer relocation. *diags Eng Rec* 68:216-7 Ag 23 '13
 Filling a tunnel cave-in by the hydraulic method. D. F. McLeod. *plans Eng N* 69: 1286-7 Je 19 '13
 Footway tunnel in New York city. *Eng N* 69: 484 Mr 6 '13
 Hudson tunnel system re-financing. *Elec Ry J* 41:241 F 8 '13
 Jungfrau railway. *il Sci Am* 109:360 N 8 '13
 Karns tunneling machine. *il Eng & Min J* 95: 851-60 Ap 26 '13
 Karns tunneling machine. S. Davis. *Eng N* 69:1079-80 My 22 '13
 Karns tunneling machine. O. J. Grimes. *il Eng N* 69:470-1 Mr 6 '13; Same. *Eng M* 45: 261-3 My '13
 Large tunneling shield: steel-channel lining of Elm tunnel on Frankfurt-Berlin railway. *il Eng N* 70:1176-7 D 11 '13
 Montreal tunnel and terminal. S. P. Brown. *il plan Eng N* 70:62-7 JI 10 '13
 Mt. Royal tunnel, Canadian Northern railway. S. P. Brown. *il plan Eng Rec* 67:708-11 Je 28 '13
 Multiple headings in rock tunneling. E. Lauchli; J. F. O'Rourke. *Eng N* 69:685-6 Ap 3 '13
 Novel tunnel work on the Cleveland short line Ry. *plans Eng N* 69:556-7 Mr 20 '13
 Precautions suggested by the Lexington avenue subway tunnel accident. M. Deutsch. *Eng Rec* 68:56 JI 12 '13
 Precise surveys for Mount Royal (Canada) tunnel. *Eng Rec* 67:534 My 10 '13
 Problem in mining, together with some data on tunnel-driving. F. M. Simonds and E. Z. Burns. *map Am Inst Min E Bul* 75:369-402 Mr '13; Discussion. 77:905-13 My '13
 Problems involved in driving long and deeply overlaid tunnels. E. Lauchli. *diags Eng Rec* 68:510-2 N 8 '13
 Progress in the Mount Royal railroad tunnel, Montreal. H. T. Fisher. *map Eng & Min J* 96:147-9 JI 26 '13

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 Proposed Hudson river bridge and tunnels to connect New York and New Jersey. *plans Eng N* 69:839-41 Ap 21 '13; *Eng Rec* 67: 367, 381-7 Ap 5 '13; Same cond. *Eng M* 45:122-4 Je '13
 Proposed method of driving and lining large tunnels. *diag Eng & Min J* 95:660-1 Mr 29 '13
 Railway tunnels of New York city. A. Noble. *il plans maps J Fr Inst* 175:343-81 Ap '13
 Relining the Mauvages tunnel on the Marne ship canal. F. B. Mann. *plan Eng Rec* 67: 203-4 F 22 '13
 Repair of an old brick tunnel lining near Hönnebach, Germany. *plans Eng N* 69:1312-3 Je 26 '13
 Repairing a tunnel lining with a cement gun. *diag Ry Age* 54:1572-3 Je 20 '13
 Sand Patch tunnel improvements: additional facilities just completed by the Baltimore & Ohio. *il Ry Age* 54:789-95 Ap 4 '13
 Self-supporting concrete tunnel-lining blocks. *il Eng Rec* 68:149 Ag 9 '13
 Shallow holes and crossbars. *Eng & Min J* 95:1196 Je 14 '13
 Supplying a metropolis with mountain water: mining operations in the heart of New York. *il Sci Am* 108:201-2 Mr 1 '13
 Tunnel and construction difficulties. *Eng Rec* 67:182 F 15 '13
 Tunnel construction on the Willamette Pacific railroad. *Eng N* 70:957 N 13 '13
 Tunnel excavation on section 1A of the Lexington ave. subway in New York. *il diag Eng Rec* 68:147-8 Ag 9 '13
 Tunnel lining with concrete on the Virginian railway without interruption to traffic. *il Ry Age* 54:1557-9 Je 20 '13
 Unit drilling costs, Rawley tunnel. *Eng & Min J* 95:523 Mr 8 '13

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Tunnels and tunneling, Subaqueous

- Astoria tunnel holed through; completion of bore to carry gas mains under East river, N. Y. *il Eng Rec* 68:95-6 JI 26 '13
 Astoria tunnel under the East river, New York. H. Carpenter. *il map Eng N* 70:737-43 O 16 '13
 Building Harlem river subway tubes. *il diags Eng Rec* 68:390-1 O 4 '13
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 Harlem river subway tunnel. *diags Eng Rec* 68:556-7 N 15 '13
 Harlem river tubular steel tunnel, New York city. *il Ry & Eng R* 53:977-8 O 18 '13
 Problem of river crossing in New York city traffic: tunnel system and railway terminals. G. F. Kunz. *Sci Am S* 76:370-1 D 13 '13
 Progress of the new Harlem river tunnel: sinking of the first section of tunnel tubes. *il Sci Am* 109:244-5 S 27 '13
 Proposed tunnel under English channel. C. O. Burge. *map Eng Rec* 68:499-500 N 1 '13
 Shall we have bridges or tunnels? G. F. Kunz. *Sci Am S* 76:402-3 D 27 '13
 Sinking second section of Harlem river tunnel tubes for Lexington avenue subway, New York city. *Eng Rec* 68:372 O 4 '13
 Unwatering two notable excavations: Catskill aqueduct and East river tunnels. *il Colliery* 33:497-9 Ap '13

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- Capacity of brakes for hydraulic turbines. *Eng Rec* 67:208 F 22 '13

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- Construction and operation of turbo-blowers and compressors. F. Zur Nedden. *il Eng M* 44:35-9, 199-203 O-N '12
- Efficiency test of 6000-hp turbines of the Appalachian power company. *il plan Elec W* 61:671-3 Mr 29 '13
- Engineering details of the Keokuk plant with description of power house and turbine units. *il plans Iron Tr R* 52:575-80 Mr 6 '13
- Heavy tools for machining turbine sections. C. Van Langendonck. *il Iron Tr R* 53:123-5 Jl 17 '13
- Keokuk (Ia.) power plant turbines. C. W. Larnier. *il Iron Age* 91:659-64 Mr 13 '13
- Large impulse wheels at Rio de Janeiro, Brazil. *plan Eng Rec* 67:23 Ja 4 '13
- Large water wheels for Keokuk power plant: problems involved in molding. *il Iron Tr R* 52:407-10 F 13 '13; Same. *Foundry* 41:109-11 Mr '13
- 19,000-hp water turbine for Rio de Janeiro. *plan Elec W* 61:897-8 Ap 26 '13
- Niagara Falls power company's new turbines. *il diags Eng Rec* 68:443-4 O 18 '13
- Novel type of water-wheel setting. J. C. Temple. *Eng Rec* 67:195 F 15 '13
- Novel water-wheel setting. *il Eng Rec* 67:130-1 F 1 '13
- Power machinery of the American steel industry. R. L. Streeter. *il Eng M* 44:219-21 N '12
- Problem of finding the proper turbine capacity to be installed at the water-power site. C. Herschel. *Eng N* 70:462-3 S 4 '13
- Problem of turbine capacity for water-power development. F. R. Weller. *Eng N* 70:674-5 O 2 '13
- Regulation of hydraulic turbines. C. Dekeyser. *Am Soc M E J* 35:1289-91 Ag '13
- Special 75-ton flat car for shipping very large water turbine wheels. R. S. Mounce. *il diag Ry Age (Mech ed)* 87:388-90 Jl '13
- 10,000-horsepower turbines at Keokuk: description of design, manufacture and transportation of the largest water-wheels ever built. C. W. Larnier. *il plan Eng Rec* 67:294-7 Mr 15 '13
- Test of the 6,000-horsepower turbines of the Appalachian power company. H. P. Rust. *il plan Eng Rec* 67:357-8 Mr 29 '13
- Test of thrust bearing on large water wheel. *Eng Rec* 67:75 Ja 18 '13
- Turbine runners of the Mississippi river power co. at Keokuk, Ia. H. B. McDermid. *il diags Eng N* 70:342-3 Ag 21 '13
- Turbines of the Mississippi river power co. at Keokuk, Ia. *il diags Eng N* 70:340-2 Ag 21 '13
- Two-dimensional turbine with a consideration of water friction, and its application to the design of blades. V. Kaplan. *Am Soc M E J* 35:1172-4 Jl '13
- Vertical-shaft single-runner hydraulic turbines as applied to low heads. *Ind Eng* 13:365-6 Ag '13
- Water wheel thrust bearing. *il plans Eng Rec* 67:44-5 Ja 11 '13
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- Efficient production of cylindrical work. C. H. Norton. *il Am Soc M E J* 35:95-106 Ja '13; Same. *Ind Eng* 13:4-6 Ja '13; Same. *Iron Tr R* 52:204-6 Ja 16 '13; Discussion. *Am Soc M E J* 35:629-31 Ap '13
- Spherical turning. J. M. Henry. *diag Mach* 19:55-6 S '12
- Taper boring and turning attachments. A. A. Dowd. *diags Mach* 20:265-71 D '13
- Turning and forming cluster gears. H. M. Wood. *il Mach* 19:507 Mr '13
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- Heated turntable pit for severe winter conditions. *Eng Rec* 67:166 F 8 '13
- Turntable tractors**
- Turntable tractor. *il diags Ry Age* 55:62-3 Jl 11 '13; Same. *Ry Age (Mech ed)* 87:448-9 Ag '13
- Turntables**
- Cheap and satisfactory turntables. L. O. Kellogg. *diags Eng & Min J* 96:261 Ag 9 '13
- Use of turntable in post drilling operations. *il Iron Tr R* 52:1182-4 My 22 '13
- Turpentine**
- Examination of oleoresins of some western pines. A. W. Schorger. *il U S Forest Serv Bul* 119:1-36 '13
- Wood turpentines: their analysis, refining, and composition. L. F. Hawley. *U S Forest Serv Bul* 105:1-69 '13
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- Annual report, 1912 compared with 1911. *Elec Ry J* 41:268 F 8 '13
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- Electrically-driven vessel "Tynemouth." F. C. Coleman. *il Sci Am* 109:357 N 8 '13
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- Composition of hieroglyphic types. N. J. Werner. *il Inland Ptr* 50:577-82 Ja '13
- Eyesight and typography. *Sci Am S* 75: 171 Mr 15 '13
- Gothic capital letters. W. Welch. *il Inland Ptr* 51:216-21 My '13
- Relations of paper, type and ink. E. M. Keating. *il Inland Ptr* 50:683-7 F '13
- Selecting and placing initial letters. W. E. Stevens. *Inland Ptr* 51:534-5 Jl '13
- Type-faces of capital letters I and J. F. J. Trezise. *il Inland Ptr* 51:241-2 My '13
- See also* Printing; Type-casting machines; Typesetting; Typesetting machines
- Type, Steel**
- Making steel type. C. L. Lucas. *il Mach* 19:592-5 Ap '13; Same. *Sci Am S* 75:372-4 Je 14 '13
- Vetter steel type making machine. C. L. Lucas. *il Mach* 19:261-3 Ag '13
- Type-casting machines**
- Tools used in making the Intertype. R. Mawson. *il Am Mach* 38:809-13 My 15 '13
- Typesetting**
- Give the operators readable copy. F. G. Small. *Inland Ptr* 51:431 Je '13
- See also* Linotype; Printing
- Job work**
- Job composition. F. J. Trezise. *See* monthly numbers of the Inland printer
- Typesetting machines**
- Machine composition. J. S. Thompson. *See* monthly numbers of the Inland printer
- See also* Linotype
- Typewriters**
- Copper and nickel-plating equipment at the works of the Underwood typewriter. J. Stedman. *il Iron Age* 92:651-3 S 25 '13
- Machine that writes shorthand. *il Sci Am* 108:13 Ja 4 '13
- Production efficiency in typewriter building: methods developed by the Oliver typewriter co., Woodstock, Ill. *il Iron Age* 91:65-70 Ja 2 '13
- Typewriter for music. *il Sci Am S* 75:245 Ap 19 '13
- Voice-operated typewriter. *il Sci Am* 108:136 F 8 '13
- See also* Adding typewriters

Typewriting

- Are men better typists than women? C. E. Smith. *Sci Am* 109:411 N 29 '13
 Are men better typists than women? scientific tests made by J. M. Lahy. J. Boyer. *il Sci Am* 109:316 O 25 '13

Typhoid fever

- Antityphoid vaccination in the reclamation service. H. A. Brown. *Eng N* 69:503 Mr 13 '13
 Dual water-supplies and typhoid fever at Philadelphia. *Eng N* 70:1022-3 N 20 '13
 Hypochlorite sterilization of water; reduction of typhoid epidemics. C. A. Jennings. *Eng M* 44:274-6 N '12
 Relation of pure water to typhoid fever. *Eng Rec* 67:273 Mr 8 '13
 Typhoid epidemic caused by uncalked joints in an intake pipe. W. M. Cobleigh. *Eng N* 69:720-1 Ap 10 '13
 Typhoid fever in large American cities. G. A. Johnson. *Eng N* 70:473-5 S 4 '13
 Typhoid outbreak apparently due to polluted water cress. *il Eng N* 70:322 Ag 14 '13
 Typhoid outbreak at Albany, N. Y., due to flooded filters. T. Horton. *Eng N* 69:1021-3 My 15 '13

Typographical union

- Tightening the grip on the newspapers. *Am Ind* 13:15 F '13

Typography. See **Printing****U****Ultra-violet rays**

- Action of ultra-violet light on animal organisms. *Sci Am* 109:208 S 13 '13
 Application of ultra-violet rays for purifying large quantities of water. M. von Recklinghausen. *Eng N* 70:376-7 Ag 21 '13
 Detecting raised checks with ultra-violet rays. *Sci Am* 108:475 My 24 '13
 How inventors use ultra-violet rays. *il diags Sci Am* 109:335-6 N 1 '13
 Purifying water by the action of ultra-violet light. M. v. Recklinghausen. *il Sci Am* 109:48 Ji 19 '13
 Sterilization of water by ultra-violet light. *Eng Rec* 67:429 Ap 19 '13
 Sterilizing water with ultra-violet rays. M. von Recklinghausen. *il diag Eng Rec* 68:121 Ag 2 '13
 Water sterilization by ultra-violet light. *il Sci Am* S 75:356 Je 7 '13
 Water sterilization by ultra-violet rays. J. A. Seager. *diags Munic Eng* 45:415-8 N '13
 Water sterilization by ultra-violet rays. M. von Recklinghausen. *diags Elec W* 62:181-3 Ji 26 '13

Underfeed stokers. See **Stokers, Mechanical****Underground railroads.** See **Subways****Underpinning.** See **Shoring and underpinning****Undulator.** A. S. Rogers. *il Sci Am* S 76:14-6 Ji 5 '13**Union Pacific railroad**

- New Union Pacific-Southern Pacific dissolution plan. *Ry & Eng R* 53:393 Ap 26 '13
 Southern Pacific-Union Pacific dissolution. *Ry & Eng R* 53:567-8 Je 14 '13
 Two new plans for dissolution. *Ry & Eng R* 53:535-6 Je 7 '13
 Union Pacific plan as approved. *Ry Age* 55:12-3 Ji 4 '13
 Union Pacific-Southern Pacific dissolution. *Ry & Eng R* 53:189-90 Mr 1 '13
 Union-Pacific-Southern Pacific dissolution. map *Ry Age* 54:276-7 F 14 '13
 Union Pacific-Southern Pacific dissolution accomplished at last. *Ry & Eng R* 53:641-2 Ji 5 '13
 Union Pacific-Southern Pacific dissolution plan. *Ry & Eng R* 53:139 F 15 '13
 Union Pacific-Southern Pacific dissolution plan disapproved. *Ry & Eng R* 53:29 Ja 11 '13

United States**Appropriations and expenditures**

- Conservation of water resources for inland navigation. A. H. Scherzer. *Munic Eng* 44:429-30 My '13
 National budget on its expenditure side. H. S. Chase. *J Account* 15:397-411 Je '13
 What is involved in the making of a national budget. F. A. Cleveland. *J Account* 15:313-28 My '13

Army

- Is our army efficient? *Eng M* 45:247-8 My '13
 Mobile army. *Sci Am* 109:410-1 N 29 '13
 Navy versus army: a study in comparative efficiency. *Eng M* 44:248-50 N '12
 Reorganization of the army. *Eng M* 44:931-2 Mr '13

Assay offices

- Buying and selling silver and gold: the scientific side of the assay office at New York. H. J. Slaker. *il Sci Am* 109:144-5 Ag 23 '13
 Electrolytic refinery in Wall street. *il Met & Chem Eng* 11:594-5 O '13

Census bureau

See **Census**—United States

Commerce

- Aspects of transportation. J. E. Kuhn. *Sci Am* S 76:138-9, 150-1 Ag 30-S 6 '13
 Development of foreign trade. *Iron Age* 92:842 O 16 '13
 Extension of American export trade. *Iron Age* 92:1366-7 D 11 '13
 Growth of the coal trade. *il Sci Am* S 75:55 Ja 25 '13
 Lake commerce through Sault Ste. Marie canals during 1912. *Eng Rec* 67:647 Je 7 '13
 Transportation on the Great lakes. H. Coulby. *Iron Age* 91:440-5 Je 5 '13
 See also **Shipping**—United States; **Tariff**—United States

Court of claims

- Court of claims decisions on engineering contracts: W. B. King. *Eng Rec* 67:352 Mr 20 '13

Economic conditions

- Address of president of National chamber of commerce, before National pipe and supplies assn. *Dom Eng* 63:189-91, 215-7 My 17-24 '13

Economic policy

- Germany's industrial policy in contrast to American tendencies. F. E. Junge. *Eng M* 44:680-9, 842-51 F-Mr '13

Engraving and printing, Bureau of

- New building at Washington. D. C. F. W. Lepper. *il plans Eng N* 70:335-8 Ag 21 '13

Forest service

See **Forest service**—United States

Geological survey

- Butte geological report. G. O. Smith. *Eng & Min J* 95:337-8 F 8 '13
 Measuring the flow of a stream. R. H. Byrd. *il Sci Am* 108:268-9 Mr 22 '13

Industries and resources

- Agriculture, manufactures and railways, a study of capital values and net returns. *Sci Am* S 75:66-7 F 1 '13
 Germany's industrial policy in contrast to American tendencies. F. E. Junge. *Eng M* 44:680-9, 842-51 F-Mr '13
 How patented inventions have increased the national wealth. *Sci Am* 108:414 My 3 '13

Merchant marine

See **Shipping**—United States

Mines, Bureau of

- Essential features of Bureau of mines act. *Eng & Min J* 95:625 Mr 22 '13
 Report. *Eng & Min J* 95:189-90 Ja 18 '13
 Some good things accomplished as shown in 2d annual report. *Colliery* 33:380-1 F '13

United States—Continued.

Navy

- Battleship protection for the Pacific coast. R. E. Bowron. Sci Am 108:491 My 31 '13
Decline of the United States navy. Sci Am 109:466 D 20 '13
Doing business with the U. S. navy. C. A. Harrington. Iron Age 91:1116-7 My 8 '13
Economy that may be disastrous. Sci Am 108:218 Mr 8 '13
Engineering competitions in our navy. Sci Am 109:406 N 29 '13
Engineering progress in the U. S. navy; abstracts. C. W. Dyson. Eng N 69:101-3 Ja 16 '13; Power 37:10-2, 106-9 Ja 7, 28 '13
List of ships of United States navy under construction August 1, 1913. Sci Am S 76:347 N 29 '13
Naval reserve movement. Sci Am 108:192 Mr 1 '13
Our fighting strength: list and tabulated descriptions of U. S. warships. Sci Am S 76:331-4 N 22 '13
Reorganization of the navy personnel. Sci Am 108:282 Mr 29 '13
United States navy wireless station, Arlington, Va. il Elec W 61:721-4 Ap 5 '13

See also Warships—United States

Patent office

- Annual report of the commissioner of patents. Sci Am 108:12-3 Ja 4 '13
Comments on the report of the investigation of the United States patent office. L. H. Baekeland. Met & Chem Eng 11:249-53 My '13
Preliminary report to the Inventors' guild: the guild's relation to patent practise. F. L. O. Wadsworth. Sci Am S 75:146-7, 166, 178-9 Mr 8-22 '13
Proposed new patent office building. Sci Am 108:218 Mr 8 '13
Report of the Economy and efficiency commission on the patent office. L. H. Baekeland. Elec W 61:969-73 My 10 '13

Politics and government

- What our government is doing for the advancement of science. A. D. Little. Sci Am S 76:303 N 8 '13

President's commission on economy

- National budget on its expenditure side. H. S. Chase. J Account 15:397-411 Je '13

Public roads. Office of

- Road models of the Office of public roads, from Roman times to the present day. il Sci Am S 76:280-2 N 1 '13
Work of Office of public roads, 1912-13. Eng Rec 68:689-90 D 20 '13

Public works

- Proposed national department of public works. Ry & Eng R 53:369 Ap 19 '13
Proposed national department of public works. I. Randolph. Ry & Eng R 53:676-7 Jl 12 '13

Reclamation service

See Reclamation service

Shipping

See Shipping—United States

Standards, Bureau of

- How the government tests paper: the methods and machines of the Bureau of standards. H. T. Wade. il Sci Am 109:260 O 4 '13
Inspecting track scales for the United States government: new test car and equipment. H. T. Wade. il Sci Am 109:468 D 20 '13
Relation to state commissions. Elec Ry J 42:976-7 N 1 '13; Elec W 62:941-2 N 8 '13

Steamboat inspection service

- Safety of life at sea. J. Donald. J Fr Inst 175:15-42 Ja '13

Supreme court

- Minnesota rate case decision. Ry & Eng R 53:561-3 Je 14 '13

Supreme court decisions in state rights cases.

- Ry & Eng R 53:35 Ja 11 '13
Union Pacific-Southern Pacific dissolution plan disapproved. Ry & Eng R 53:29 Ja 11 '13

Weather bureau

- Progress of the weather bureau. Sci Am 108:16 Ja 4 '13

United States commission on industrial relations

- Nominations for the Industrial commission. Am Ind 13:19 Ja '13

United States reclamation service. See Reclamation service

United States smelting, refining & mining company

- Report for 1912. Eng & Min J 95:1158 Je 7 '13

United States steel corporation

- Annual meeting at Hoboken, N. J., Ap 21, 1913. Iron Tr R 52:950 Ap 24 '13
Annual report for 1912. Eng & Min J 95:665-7 Mr 29 '13
Annual report for 1912. Iron Tr R 52:752-3 Mr 27 '13
Attorneys in corporation dissolution suit entered hearing. Iron Tr R 52:700 Mr 20 '13
Bureau of corporations report on U. S. steel corporation; third part. Iron Age 91:1168-9 My 15 '13
Buyers tell about strong competition. Iron Tr R 53:985 N 27 '13
Canadian plant at Sandwich. map Iron Tr R 52:171 Ja 9 '13
Charles M. Schwab and James A. Farrell cross-examined—Farrell's statistics attacked. Iron Age 91:1326-9 My 29 '13
Charles M. Schwab testifies for corporation. Iron Age 91:1263-4 My 22 '13
Corey testifies in dissolution suit. Iron Tr R 52:316-23 Ja 30 '13
Corey's views did not represent policy of Corporation. Iron Tr R 52:1468-70 Je 26 '13
Data regarding export trade presented by President Farrell. Iron Tr R 52:1100-1 My 15 '13
Defense presents testimony from competitors and consumers. Iron Age 92:1244-5 N 27 '13
Defense presents testimony regarding its cement properties, the Tennessee company acquisition and the Garfield investigation. Iron Age 92:22-4 Jl 3 '13
Director Reed, president Coulbey of Pittsburgh steamship company, president Lynch of Frick coke company, and sales manager Davis of American bridge company examined. Iron Age 91:1549, 1568-9 Je 26 '13
11th annual report, 1912. Iron Age 91:721, 745-6 Mr 20 '13
Export trade of the Steel corporation. Eng & Min J 95:1236 Je 21 '13
Farrell makes strong defense in dissolution suit. Iron Age 91:1185, 1206-7 My 15 '13
Farrell says corporation prices were not secret; Schwab completes his testimony. Iron Tr R 52:1258-61 My 29 '13
Farrell tells of the foreign business. Iron Tr R 52:1136-9 My 15 '13
Farrell testifies in examination covering many phases of making and selling of steel and iron products. Iron Tr R 52:1194-1200 My 22 '13
Farrell testifies to large outputs by competitors in all lines. Iron Age 91:1239-43 My 22 '13
Gary and the subsidiary companies. Iron Age 91:1494-5 Je 19 '13
Gary begins testimony for defense. Iron Tr R 52:1216-7 My 29 '13
Gary describes development of the corporation. Iron Tr R 52:1310-6 Je 5 '13
Gary dinners like Methodist camp meeting. Iron Tr R 52:1384-5 Je 19 '13
Gary first steel corporation witness in dissolution suit. Iron Tr R 52:372-3 F 6 '13
Gary testifies for the corporation. Iron Age 91:1373, 1394-8 Je 5 '13
Gary's direct examination closed. Iron Age 91:1437 Je 12 '13

United States steel corporation—Continued.

Gayley disproves monopoly in iron ore in dissolution suit. Iron Age 91:665-7 Mr 13 '13

Gayley testifies about Lake Superior ore purchases at hearing. Iron Tr R 52:591-2 Mr 6 '13

Gayley's testimony in dissolution suit. Iron Tr R 52:608, 642-6 Mr 13 '13

Government and the steel corporation. Eng & Min J 96:782 O 25 '13

Government's star witness, W. E. Corey. Iron Age 91:312-5 Ja 30 '13

Greatest tonnage record made by corporation in past year, but profits did not increase correspondingly. Iron Tr R 52:702-5 Mr 20 '13

High cost of pig iron making by Tennessee co. Iron Tr R 53:763-4 O 23 '13

Historic letters of A. Carnegie and J. P. Morgan. Iron Tr R 52:1471 Je 26 '13

Improvement in trade conditions due to Steel corporation. Iron Tr R 53:944-6 N 20 '13

Inquiry into the royalty on Lake Superior ore in connection with the Hill leases. Iron Age 91:380-1 F 6 '13

Iron and steel exports. Iron Tr R 52:761 Mr 27 '13

Iron ore holdings of corporation not adequate. Iron Tr R 53:2, 44-5 J1 3 '13

Lines of the U. S. steel corporation from the Minnesota mines to the Pittsburgh mills. Il map Ry Age 55:186-92 S 19 '13

Many millions of tons of ore not controlled by steel corporation. Iron Tr R 53:663-5 O 9 '13

More steel buyers testify to active competition. Iron Age 92:1361-5 D 11 '13

More testimony in favor of the corporation. Iron Age 92:1168-9 N 20 '13

Numerous buyers testify competition is active. Iron Age 92:1444-5 D 25 '13

Percival Roberts, Jr., of the board of directors, testifies on a wide variety of phases of the steel trade. Iron Age 91:1434-6 Je 12 '13

Percival Roberts testifies in corporation suit. Iron Tr R 52:1366-9 Je 12 '13

Prolonged cross-examination of Judge Gary. Iron Tr R 52:1420-2 Je 19 '13

Rail trade and how it was controlled. Iron Tr R 52:1156 My 22 '13

Report for 1912. Met & Chem Eng 11:175 Ap '13

Steel corporation in Canada. Iron Age 91:209 Ja 16 '13

Testimony by iron-ore experts and geologists. Iron Age 92:941-2 O 23 '13

Testimony of F. S. Witherbee. Iron Age 92:984-5 O 30 '13

Testimony of officers of independent steel companies. Iron Age 92:858-9 O 16 '13

Testimony of ore experts. Iron Age 92:817-9 O 9 '13

Trade testimony submitted in behalf of the corporation. Iron Age 92:1084-5 N 6 '13

Welfare work of the steel corporation. Eng & Min J 75:1185 Je 14 '13

Witnesses tell of iron ore reserves. Iron Tr R 53:715-6 O 16 '13

Witnesses testify about competition. Iron Tr R 53:814-5 O 30 '13

Witnesses testify regarding active competition in steel trade. Iron Age 92:1293 D 4 '13

Units

Myriawatt as a unit of power. Elec Ry J 41:96-7 Ja 18 '13; Sci Am 108:112 F 1 '13

New units in aerology. A. McAdie. Il Sci Am S 76:357 D 6 '13

Recommendations concerning the units of force. E. V. Huntington. Eng N 70:100-1 Ag 28 '13

Shall we let the foot-pound wobble? W. Kent. Power 37:684 My 13 '13

Units of energy; an appeal to simplify engineering calculations by avoiding the use of cumbersome conversion factors. C. Her- ing. Eng M 44:93-6 O '12

See also Electric measurement; Electric units; Horsepower; Metric system; Weights and measures

Universal Portland cement company

Guarding against accidents. Munic Eng 41:186-9 Mr '13

Universities. See Colleges and universities

University of Illinois. See Illinois, University of

Uranium

Preliminary report on uranium, radium, and vanadium. R. B. Moore and K. L. Kithil. Il map U S Bur Mines Bul 70:1-96 '13

Uranium and radium situation. C. L. Parsons. Met & Chem Eng 11:275-6 My '13; Same. Sci Am S 75:374-5 Je 14 '13

Uranium deposits of Portugal. Eng & Min J 96:71-2 J1 12 '13

See also Carnotite

Urinals

Urinals—their sanitary requirements. F. W. Tower. Dom Eng 65:163-4 N 8 '13

Useful arts. See Manufactures

Utah copper company

Report for 1912. plan Eng & Min J 95:1007-9 My 17 '13

Utah light and railway company, Salt Lake City

Power plant extension. Il Elec Ry J 41:71 Ja 11 '13

Rapid construction of extension of Jordan steam station. Il Eng N 69:216-7 Ja 30 '13

Utah university

College shrine, the initial letter of Utah university in concrete. Il. Goff. Il Concrete Cem 2:83 F 13

Utica, New York**Railroads**

Utica general improvement on the New York Central & Hudson river railroad. Il plans Eng Rec 67:596-9 My 31 '13

V**Vaccination**

Antityphoid vaccination in the reclamation service. H. A. Brown. Eng N 69:503 Mr 13 '13

Vacuum cleaning

Arco Wand vacuum cleaner. Il Heat & Ven 10:14-6 Ja '13

Challenge system of vacuum cleaning. Il Heat & Ven 10:52-4 J1 '13

Connorsville vacuum cleaners. Il diags Heat & Ven 10:51-4 Ag '13

Dunn's improved vacuum systems. Il diags Heat & Ven 10:56-7 S '13

Modern vacuum cleaning apparatus; the Tuec air cleaning system. Il plans Heat & Ven 10:50-2 Ap '13

Rotrex vacuum cleaning system. Il Heat & Ven 10:50-2 J1 '13

Spencer turbine cleaners. Il Heat & Ven 10:51-4 My '13

Tests of vacuum cleaning systems. J. R. McColl. Il diags Am Soc M E J 35:1381-1403 S '13

Vacuum cleaning. M. S. Cooley. Il Heat & Ven 10:11-6 Ja; 13-9 F '13

Vacuum road cleaning. Eng Rec 67:574 My 24 '13

Vacuum pumps

Improved vacuum pump. Il Sci Am 108:360 Ap 19 '13

Modern pumps for high vacua. E. N. da C. Andrade. Il Sci Am S 75:141 Mr 1 '13

Molecular air pump. W. Gaede. Il Eng M 41:614-7 Ja '13

Valuation

Bringing an old water-works valuation up to date. W. E. Butt. Eng N 70:408-9 Ag 28 '13

Engineering appraisements of waterworks properties. Eng Rec 68:358-9 S 27 '13

Fundamentals of valuation of public utilities. Ry Age 55:411-6 S 12 '13

Garbage-plant appraisal in Chicago; abstract of opinions of the appraisers. Eng Rec 68:465-6 O 25 '13

Valuation—Continued.

- Modern practice in manufacturing plant appraisal. C. W. McKay. Mach 19:686-7 My '13
- Original cost versus replacement cost as a basis for rate regulation. R. V. Hayes. Ry Age 55:450-2 S 12 '13
- Other elements of value than franchise values. C. M. Rosecrantz. Elec Ry J 42:822-4 O 16 '13
- Physical valuation of public utilities. R. S. Hale. Eng M 45:161-5 My '13
- Principles of valuing property; discussion of paper by H. K. Rowell. Am Soc M E J 35: 285-8 F '13
- Ratings for valuation engineers. J. B. Wright. Eng Rec 68:705-6 D 20 '13
- Relation of surplus to rate-making. Elec W 62:942-4 N 8 '13
- Something along the line of physical and intangible valuation as covered by recent legislation. R. E. Rifenberck. Elec Ry J 41: 1163-7 Je 28 '13
- True value of public-utility property as it affects public welfare. Eng N 70:367-8 Ag 21 '13
- Valuation of buildings. R. H. Overstreet. Eng N 70:516-8 S 11 '13
- Valuation of coal land. H. M. Chance. Am Inst Min E Bul 79:1315-41 Ji '13; Discussion. 83:2693-2701 N '13
- Valuation must be based on market value or on amount of the investment. H. P. Gillette. Ry Age 54:55-6 Ja 10 '13
- What makes value? Eng M 45:568-9 Ji '13
- See also* Depreciation; Mine valuation; Pavements—Valuation; Railroads—Valuation; Street railroads—Valuation
- Valves and valve gearing**
- Automatic and hand-controlled underloading and reducing valves. il diag Power 38:844-5 D 16 '13
- Criticisms of non-poppet valves to-date. E. P. Batzell. il plan Automobile 28:48-9, 165-7 Ja 2-9 '13
- Determining reducing-valve sizes. J. R. Brown. Power 38:452-3 S 23 '13
- Exhaust-valve trouble. W. M. Grey. Power 37:823 Je 10 '13
- Fairbanks renewable seat valves. il Power 38:466 S 30 '13
- Guition's combination sleeve-and-rotary-valve motor. diags Automobile 29:157-8 Ji 24 '13
- Horsepower per litre cylinder volume: Sleeve valve versus poppet type. C. Y. Knight. Automobile 29:1050-1 D 4 '13
- How the Adler silent valve is made. diags Automobile 28:1252 Je 19 '13
- Improved float valve; G. M. Davis regulator co. il Ind Eng 13:361-2 Ag '13
- McAndrews floating school; valves and valve gear. C. A. McAllister. diags Int Marine Eng 18:259-61 Je '13
- Machining automobile cylinder-valve holes. F. W. Whitehead. diags Am Mach 38:727-8 My 1 '13
- Making motor poppet valves. D. T. Hamilton. il Mach 20:41-2 S '13
- New Corliss valve gear. il Ind Eng 13:313-5 Ji '13
- New valve-operating device. plan Eng N 69: 252 F 6 '13
- Non-poppet motors influence poppet type. E. P. Batzell. diags Automobile 28:760-1, 802-3, 844-5 Ap 3-17 '13
- Nordberg long-range valve-gear. il plan Power 37:738-40 My 27 '13
- Pipes and valves. C. A. McAllister. diags Int Marine Eng 18:493-6 N '13
- Pump-valve seat which rotates its valve to produce uniform wear. diag Eng N 70:909 N 6 '13
- Putting new stems in Corliss valves. H. R. Low. plan Power 37:735-5 My 27 '13
- Putting new valve stems in Corliss engine. J. C. Hawkins; C. B. Hudson. Power 37: 646 My 6 '13
- Quitette reducing valve. il Power 37:219-20 F 18 '13
- Selection and use of check valves. W. H. Wakeman. diags Dom Eng 62:69-70 Ja 18 '13

- Setting expansion valves. T: G. Thurston. Power 38:826-7 D 9 '13
- Sleeve-valve car makes 14-hour record. diag Automobile 28:1209 Je 12 '13
- Standard specifications for water-works hydrants and valves. Eng N 70:265-7 Ag 7 '13
- Tests with large annular valves operated by laminated springs for canalization pumps, and contribution to the dynamics of valve motion. K. Schoene. Am Soc M E J 35: 1568-9 O '13
- Tool for repairing triple valves. il Ry Age (Mech ed) 87:625-6 N '13
- Twenty operations to make Knight sleeve valve at Stearns factory. il Automobile 29: 648-9 O 9 '13
- Valve for many purposes. C. R. Van Keuren. il Power 38:513 O 7 '13
- Will triple valves operate as intended? S. W. Dudley. Ry Age (Mech ed) 87:319-23 Je '13; Same cond. Ry Age 54:1067-8 My 16 '13
- See also* Locomotives—Valves and valve gear; Safety valves

Vanadium

- Lucky Bill—lead vanadium mine, New Mexico. P. A. Larsh. il Eng & Min J 96:1103-5 D 13 '13
- Making a large vanadium bronze engine housing. il Foundry 41:221-6 Je '13
- Preliminary report on uranium, radium, and vanadium. R: B. Moore and K. L. Kithil. il map U S Bur Mines Bul 70:1-96 '13
- Vanadium market. Iron Tr R 52:984 Ap 24 '13
- See also* Carnotite; Ferrovandium

Vanadium iron

- Vanadium iron for motor cylinders. Automobile 29:246 Ag 14 '13

Vanadium steel

- Chrome-vanadium car wheels. Iron Tr R 52: 626 Mr 13 '13
- Chrome-vanadium driving wheel tires. il Am Eng 87:15-7 Ja '13
- Chrome-vanadium vs. carbon rolled steel wheels. plan Ry & Eng R 53:185-6 Mr 1 '13
- Determination of phosphorus in vanadium steels. E. W. Hagmaier. Met & Chem Eng 11:28-9 Ja '13
- Drop test of heat-treated chrome-vanadium wheels. Ry Age 55:573-4 S 26 '13; Same. Ry & Eng R 53:940 O 4 '13
- Metallurgy of shafts and rods and comparative analyses. Automobile 28:465 F 13 '13
- Service of vanadium steel locomotive parts. Ry Age (Mech ed) 87:648 D '13
- Service records of heat-treated chrome-vanadium axles. Ry & Eng R 53:571-2 Je 14 '13
- Service records of vanadium steel main and side rods on five roads. Ry & Eng R 53:1023-4 N 1 '13
- Vanadium cast steel locomotive frames. il Ry & Eng R 53:542-3 Je 7 '13
- Vanadium steel and its application in locomotive construction. G. L. Norris. Ry & Eng R 53:894-5 S 20 '13; Excerpts. Eng N 70:634 S 25 '13
- Vanadium steel main and side rods: three years' service records. il Sci Am S 76: 373 D 13 '13
- See also* Ferrovandium

Vancouver, B. C.**Bridges**

- Georgia-Harris viaduct, Vancouver, B. C. plan Eng N 70:344-5 Ag 21 '13

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- Greater Vancouver joint sewerage scheme: organizing and financing project for draining 55,600 acres, with data on rainfall and float tests. map Eng Rec 68:472-4 O 25 '13

Vanning shovels

- Empirical vs. exact methods of tin assaying. Met & Chem Eng 11:63-4 F '13

Vaporizers

- G. C. vaporizer shows good exhaust test. il Automobile 29:346 Ag 21 '13
- Kerosene vaporizer cuts down fuel expense. diag Automobile 28:909 Ap 24 '13
- New kerosene vaporizer demonstrated. Sci Am 109:125 Ag 16 '13

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Tate electro vaporizer. diags Automobile 28; 779 Ap 3 '13

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Vaulting

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Failure of groined arches at Baltimore's new water-filtration plant. J. W. Armstrong. il Eng Rec 68:538-40 N 15 '13

Groined-arch vaulting. Eng Rec 68:622 D 6 '13

See also Domes

Vaults

Bank vault of the Guaranty trust company of New York city. il plans Eng N 70:262-5 Ag 7 '13

Vegetable hair

Vegetable hair industry of the South. Sci Am 108:334 Ap 12 '13

Vegetable oils. See Oils and fats

Vehicles

See also Automobiles; Cars; Electric vehicles; Motor trucks; Transportation; Trucks

Velocity

Air resistance to falling bodies. A. A. Somerville. il Sci Am 108:429 My 10 '13

Vending machines. See Slot machines

Venezuela**Industries and resources**

Venezuelan iron ore development; discussion of the possibilities of the deposits as a future source of supply for eastern iron plants. il map Iron Tr R 52:685-7 Mr 20 '13

Venice, Italy

New campanile at Venice. Sci Am 108: 152 F 15 '13

Roller-bearing support of figure on the campanile. plan Eng Rec 67:111 Ja 25 '13

Ventilation

Admitting cold air to rooms. W: J. S. Baldwin. Heat & Ven 10:40-1 Ja '13

Air conditioning for textile mills. F: W. Parks. Ind Eng 13:397-8 Jl '13; Same, with discussion. Am Soc M E J 35:1036-42 Je '13

Air washing as a means of obtaining clean air in buildings. G: C. Whipple and M. C. Whipple. Heat & Ven 10:13-9 S '13; Same cond. Eng N 70:571-3 S 18 '13

Automatic supply and exhaust ventilation for a residence. il diags Heat & Ven 10:13-6 Jl '13

Development of the switch damper. W: J. S. Baldwin. plans Heat & Ven 10:22-5 Ja '13

Downward ventilation in a Rockford, Ill., school house. C. E. Beery. plans Heat & Ven 10:23-30 Mr '13; Same cond. il Eng N 69:496-7 Mr 13 '13

Downward ventilation in a Rockford school. il Power 37:301-2 Mr 4 '13

Downward ventilation in a Rockford, Ill., school house; discussion. Heat & Ven 10: 39-41 Ap '13

Effect of humidity, temperature and barometric pressure on the blood-pressure. B. R. Hoobler. Heat & Ven 10:17-21 Ja '13

Effects of back drafts in dusty ventilating ducts. Heat & Ven 10:43-4 Jl '13

Equivalent opening of a ventilating system and the characteristic curves of a fan. M. Kloss. Am Soc M E J 35:692-1 Ap '13

Experiments in school room ventilation with reduced air supply through individual ducts. F: Bass. il Heat & Ven 10:16-21 Ag '13

Experiments on the ventilation of a school-room; review of the work and future plans of the Chicago ventilation commission. J: W. Shepherd. Heat & Ven 10:24-32 D '13

Fresh air inlet through roof. diag Dom Eng 65:73 O 18 '13

Grinder room ventilation for paper mills.

A. Ritter. plans Dom Eng 62:66-7 Ja 18 '13

Heat and ventilation in a large foundry; International harvester co.'s plant, Springfield, O. il diag Iron Age 91:115-7 F '13

Heat and ventilation; suggestions for combining heating with air conditioning systems. S. G. Koon. Eng M 44: 785-8 F '13

Heating and ventilating apartment house. plans Dom Eng 63:118-26 My 3 '13

Heating and ventilating Bonwit-Teller bldg., N. Y. city. plans Dom Eng 62:368-72 Mr 29 '13

Heating and ventilating equipment of the Newark normal school, Newark, N. J. il plans Heat & Ven 10:21-6 My '13

Heating and ventilating the hotel McAlpin. J. Graham. il plans Dom Eng 63:5-13 Ap 5 '13

Heating and ventilating the new Ainsworth school, Portland, Ore. J. Graham. diags Dom Eng 65:130-3 N 1 '13

Heating and ventilating the new St. Patrick's church, Philadelphia. J. Graham. plans Dom Eng 65:298-302 D 6 '13

Heating and ventilation of office buildings. J. Graham. plans Dom Eng 63:276-9; 61: 2-4 Je 7, Jl 5 '13

Human element in industry. W. Talbot. Iron Age 91:367-9 F 6 '13

Improved air conditions in a Boston residence. F. I. Cooper. plan Heat & Ven 10: 20-3 F '13

Loft ventilation. plans Heat & Ven 10:44-6 Mr '13

Machine shop heating, ventilating and cooling on a large scale; plant of Ford motor co., Detroit, Mich. il plans Heat & Ven 10: 42-8 F '13

Modern mechanical equipment for a public institution. il plan Heat & Ven 10:35-43 O '13

New terminal post office in New York. L. B. Marks and J. E. Woodwell. il Elec W 61: 191-2 Ja 25 '13

New ventilation. Dom Eng 65:80 O 18 '13

19th semi-annual meeting of the American soc. of heating and ventilating engineers, Buffalo, July, 1913. Power 38:180-1 Jl 29 '13

Notes on ventilation. Power 37:673-4 My 13 '13

Ozone in ventilation. M. W. Franklin. Heat & Ven 10:30-5 O; 13-8 N '13

Picture theatre ventilation. diags Heat & Ven 10:39-41 Ag '13

Points on practical ventilation. W: J. Baldwin. Dom Eng 65:372 D 20 '13

Primary physiological purpose of ventilation. T. Hough. Heat & Ven 10:35-40 S '13

Proceedings of meeting of American soc. of heating and ventilating engineers, Buffalo, N. Y., July, 1913. Heat & Ven 10:28-37 Ag '13

Question of heat and ventilation. C: L. Hubbard. il Arch Rec 33:444-56; 34:248-56 My, S '13

Regulating the air conditions in a glove steaming room of Julius Kayser & co., Brooklyn, N. Y. plans Heat & Ven 10:20-6 Ap '13

Rules promulgated for the ventilation of picture theatres. Heat & Ven 10:33-4 Ap '13

School ventilation in New York city. C. E. A. Winslow. Heat & Ven 10:20-8 S '13

Theatre ventilation situation in Chicago. Heat & Ven 10:49 O '13

Ventilating a modern department store. il diags Dom Eng 62:36-8 Ja 25 '13

Ventilation and recirculation. L. H. Gulick. Heat & Ven 10:20-3 O '13

Ventilation equipment of Ritz-Carlton hotel. il plans Dom Eng 62:155-8 F 8 '13

Ventilation experiments at Chicago Normal school. Heat & Ven 10:15-6 Ap '13

Ventilation of gymnasiums; detailed results at Springfield (Mass.) ventilation plant. J. H. McCurdy. plan Heat & Ven 10:26-33 N '13

Ventilation—Continued.

Ventilation of the Princess theatre, St. Paul, J. Graham, plans Dom Eng 65:105-6 O 25 '13

Warm air heating and ventilating, K. Meier, diags Heat & Ven 10:28-32 S '13

See also Air filters; Air pollution; Car ventilation; Chimneys; Dust removal; Fans, Electric; Fans, Mechanical; Heating; Mine ventilation; Ozone; Tunnel ventilation

Ventilation law

Compulsory ventilation law is discussed, Dom Eng 62:191-2 F 15 '13

Venturi meter coefficients, A. Hazen, Eng N 70:198-202 J1 31 '13

Verein deutscher ingenieure

Mechanical engineers' German meeting, F. R. Low, il Power 38:212-4 Ag 5 '13

Mechanical engineers in Germany, Iron Age 52:72-3 J1 10 '13

Verein deutscher ingenieure; largest engineering society in the world, Eng Rec 67: 104-5 Ja '13

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Absorption of machine vibrations, R. Grimshaw, diags Power 38:700-1 N 11 '13

Power-plant vibration, H. G. Gibson, diags Power 38:481 S 30 '13

Power-plant vibration and methods of isolation, F. H. Davies, diags Power 38:247-9 Ag 12 '13

Vibration of rifle barrels, F. Carnegie, Sci Am S 75:186-7 Mr 22 '13

See also Heat; Light

Vibrolithic concrete pavement, R. C. Stubbs, il Concrete Cem 2:72-3 F '13

Vienna, Austria**Galleries and museums**

New Vienna museum of technology and the industrial arts, Sci Am 108:50 Ja 11 '13

Visiting nurses. See Nurses and nursing

Vital statistics

See also Mortality

Vocational training

Present day need of vocational education, T. W. Robinson, Iron Age 92:1048-53 N 6 '13

Vocational education, H. E. Miles, Am Ind 13: 27-9 Ja '13

Vocational education in Philadelphia and vicinity, A. J. Rowland, Am Inst E E Pro 32:1409-27 Je '13

Vocational training in the Fur West, R. Sibbey, Am Inst E E Pro 32:1429-31 Je '13

See also Industrial education; Railroad education

Voice

Voices of the deaf; graphic records of speech, E. W. Scripture, il Sci Am S 76:60-1 J1 26 '13

Volcanic dust

Volcanic dust and climatic changes, Eng & Min J 96:453-4 S 6 '13

Volcanic dust as a factor in the production of climatic changes, W. J. Humphreys, Sci Am S 76:114 Ag 23 '13

Volcanic rocks. See Rocks, Igneous

Volcanoes

Volcanic action and newly recognized types of volcanoes, E. H. L. Schwarz, Sci Am S 76:146-7 S 6 '13

See also Rocks, Igneous

Voltaic cell. See Electric batteries

Voltmeter

Silver voltmeter, J Fr Inst 175:421-3 Ap '13

Silver voltmeter, E. B. Rosa, G. W. Vinal, and A. S. McDaniel, U S Bur Stand Bul 9:151-282, 493-551 Ap-D '13; Summary of pt 3, Elec W 61:84-5 Ja 11 '13

Voltmeters

Calibration of the sphere gap voltmeter, L. W. Chubb and C. Fortescue, il Am Inst E E Pro 52:628-38 F '13

Electricity in mines, H. S. Webb, Colliery 34:247-8 N '13

Iron-loss voltmeter, il Elec W 62:251 Ag 2 '13

Keystone ammeter and voltmeter, il Met & Chem Eng 11:355 Je '13

Methods of determining temperature of transformers and of cooling medium, S. E. Johannessen and G. W. Wade, Am Inst E E Pro 32:254-75 F '13; Discussion, 32:1872-6 S '13

Vulcanization

New law of vulcanization: physical chemistry of rubber manufacture, A. O. Bourn, Sci Am S 75:397-8 Je 21 '13

W**Wabash river**

Wabash river flood, March 21-April 2, 1913, R. L. Sackett, il Eng N 63:536-8 Ap 24 '13

Wages

Compensation of labor on British and American railways, Ry & Eng R 53:1183-4 D 20 '13

Efficiency and the railway wage problem, F. L. Jandron, Eng M 44:241-7 N '12

Foreign metal working costs: wages in German and English machine shops, Iron Age 91:1035 Ap 24 '13

Fundamentals of wage payment, B. B. Miller, charts Ry Age 54:952-7 Ap 25 '13

Living wage and the living rate, T. Roosevelt, Ry & Eng R 53:693 J1 19 '13

Payment of employees by results—a suggestion, W. L. Waters, Elec W 61:54-5 Ja 4 '13

Premium, piece work, and the expense burden, A. H. Church, Eng M 46:7-18 O '13

Psychology of management, L. M. Gilbreth, Ind Eng 13:161-4 Ap '13

Revised pension plan; funding provision upon actuarial calculations for each employee over and above present wage, due upon separation from service, A. deRoode, Eng M 45:728-30 Ag '13

Scientific management and the wage problem, C. B. Thompson, Ind Eng 13:430-3 O '13

Wage systems and their consequences, C. B. Thompson, Iron Age 91:1009 Ap 24 '13

Wages in the Amazon river valley, H. E. Collins, Power 37:521-3 Ap 15 '13

Wages paid in European metal-working industries, Ind Eng 13:240 Je '13

See also Bonus system; Labor contracts; Piece work; Premium wage system; Profit sharing; Salaries; Time study

Waihi gold mining co., New Zealand

Annual report for year ended Dec. 31, 1912, Eng & Min J 96:407-8 Ag 30 '13

Walls

Break of baffle wall in Fort Smith, Ark., settling basin, diags Eng Rec 68:619-20 N 29 '13

Collapse of thin partition wall in a waterworks settling basin, plan Eng N 70:1049 N 20 '13

Further data on the collapse of the waterworks partition wall at Fort Smith, Ark., W. Kiersted, plan Eng N 70:1179 D 11 '13

See also Foundations; Retaining walls; Sea walls

Walls, Concrete

Double concrete walls with tile columns, il Concrete Cem 2:135-6 Mr '13

Double walls and tile columns in residence construction, il plan Concrete Cem 2:218-20 My '13

Featherweight concrete units for wall construction, il plan Concrete Cem 3:90-2 Ag '13

Flood wall at Portsmouth, Ohio; design, cost and service record of reinforced-concrete defenses, J. I. Hudson, il Eng Rec 68:712-3 D 27 '13

Notes on wall centering, A. B. Loomis, diag Concrete Cem 3:80-1 Ag '13

Tests of reinforced-concrete wall and column footings, Eng Rec 68:126-8 Ag 2 '13

See also Concrete construction; Dams, Concrete

Walnut

Circassian walnut. *Sci Am* 108:332 Ap 12 '13

Wapato irrigation project in northern Washington. *Eng Rec* 67:11-2 Ja 4 '13

War

Other side of war: effects of modern weapons. *Sci Am* 109:162 Ag 30 '13

War ships. See **Warships**

Warehouses

Chicago warehouse for steel products: facilities of A. M. Castle & co. *Il Iron Tr R* 52: 978-80 Ap 21 '13

Iron and steel jobbing warehouse: handling and storing material at Roehm & Davison house, Detroit. *Il plan Iron Age* 92: 831-3 O 16 '13

New iron and steel warehouse of A. M. Castle & co., Chicago. *Il Iron Age* 92:297 Ag 7 '13

New York warehouse (Milne & co.) for jobbing steel bars. *Il plan Iron Tr R* 52:1022-4 My 1 '13

See also **Grain elevators**

Warships

Application of Diesel engines to war vessels. P. Dumanois. *Am Soc M E J* 35:1777-9 D '13

Compressed air as a protection for battleships. O. Meyer. *Sci Am* 108:375 Ap 26 '13

Compressed air as a protection for battleships. R. G. Skerrett. *Sci Am* 108:266 Mr 22 '13

Electrical equipment of a modern battleship. H. A. Horner. *Il J Fr Inst* 176:173-88 Ag '13

Fire control platform of a United States battleship. J. B. Walker. *Sci Am* 109:363 N 5 '13

Foreign dreadnought developments. *Sci Am* 108:370 Ap 26 '13

Heavy-oil engine in marine service and its influence upon battleship design. R. C. H. Reid. *Il Sci Am S* 75:113-4 F 22 '13

Increased cost of warships. *Sci Am S* 75:323 My 24 '13

Influence of air pumps on the military efficiency of turbine-driven warships. D. B. Morison. *Il Int Marine Eng* 18:420-5 O '13

Institute of Italian naval and mechanical engineers. *Int Marine Eng* 18:132-3 Mr '13

Is the supremacy of the battleship challenged? *Sci Am* 109:26 J1 12 '13

Multi-gun turrets. *Sci Am* 109:106 Ag 9 '13

Oil fuel for destroyers and battleships. *Power* 27:145-6 F 4 '13

Old-time war vessel, Wolverine, on the Great Lakes. N. Wilber and L. Isaacs. *Il plans Int Marine Eng* 18:524-30 D '13 (to be cont)

Steel furniture, bulkheads, doors and trim for battleships and merchant vessels. *Il Int Marine Eng* 18:365-6 Ag '13

Turbine reduction gear in relation to battleship fighting power. *Il diag Sci Am* 109: 317-8 O 25 '13

Word of warning: navies and the policy of oil as fuel. *Sci Am* 109:46 J1 19 '13

See also **Armor plate**; **Submarine boats**; **Torpedo boats**; **Training ships**; also **Rio de Janeiro (battleship)**

Argentina

New Argentine dreadnought Rivadavia. *Il Sci Am* 109:253 O 4 '13

Brazil

Armored river monitors for Brazil. F. C. Coleman. *plan Int Marine Eng* 18:471-2 N '13

Brazilian battleship Rio de Janeiro. O. Parkes. *Il Sci Am* 108:492-3 My 31 '13

France

French battleship Jean Bart. *Int Marine Eng* 18:288 J1 '13

French battleships Provence and Bretagne. *plan Int Marine Eng* 18:328-9 Ag '13

French destroyer Magon. *Il Int Marine Eng* 18:296 J1 '13

Official trials of the French battleship Courbet. *Il Int Marine Eng* 18:443 O '13

Recent warships for the French admiralty. *Il plans Int Marine Eng* 18:93-7 Mr '13

Germany

Growth of a great navy. P. A. Hislam. *Il Sci Am* 108:211-2 Mr 15 '13

Great Britain

British battle-cruiser Tiger. *Int Marine Eng* 18:290 J1 '13

British battleship Benbow. *Int Marine Eng* 18:125 Mr '13

Twenty-five-knot British battleships. *Sci Am* 109:450 D 13 '13

Italy

First triple-turreted warship. P. A. Hislam. *Il Sci Am* 108:434 My 10 '13

Japan

Japanese and the American navies. *Sci Am* 108:534 Je 14 '13

Japanese and American navies compared. P. Hislam. *Il Sci Am* 108:537 Je 11 '13

Japanese battle-cruiser Kongo. *Il Sci Am* 109:128 Ag 16 '13

Japan's battle-cruiser squadron. *Sci Am* 109: 122 Ag 16 '13

New types for the Japanese navy. O. Parkes. *Sci Am* 108:138 F 8 '13

United States

Armored ships of the United States navy. *Il Sci Am S* 76:321 N 22 '13

First super-dreadnought of the U. S. Navy: the "Texas." *Il Sci Am* 109:373 N 15 '13

Injury to the hull of the U. S. S. Arkansas by grounding. *Il Eng N* 70:439-41 S 4 '13

Japanese and American navies compared. P. Hislam. *Il Sci Am* 108:537 Je 14 '13

Japanese and the American navies. *Sci Am* 108:534 Je 14 '13

List of ships of the United States navy under construction August 1, 1913. *Sci Am S* 76: 347 N 29 '13

Metal work of the New York. *Il Metal Ind n s* 11:329-30 Ag '13

Millions for naval armor—the remedy. L. E. Browne. *Sci Am* 109:110 Ag 9 '13

Our fighting strength: list and tabulated descriptions of U. S. warships. *Sci Am S* 76: 331-4 N 22 '13

Our latest battleship Pennsylvania. *Il Sci Am* 108:173 F 22 '13

Shall we build battle cruisers? R. D. Gatewood. *Sci Am* 108:139 F 8 '13

United States battleship Pennsylvania. *Il Int Marine Eng* 18:170-1 Ap '13

Washing machines

Electric washing machine with novel reversing device and safety attachment. *Il Elec W* 62:395-6 Ag 23 '13

Prize winner in Chicago washing-machine contest. *Il Elec W* 62:485 S 6 '13

Washington, D. C.

Architecture

Pan American Union and its annex, Washington, D. C. C. M. Price. *Il plans diag Arch Rec* 34:385-457 N '13

Hotels

Shoreham hotel. *Il Arch & Bldg* 45:73-5 F '13

Streets

Cleaning streets in Washington. J. W. Paxton. *Eng Rec* 68:353-4 S 27 '13

Street cleaning without contractors in Washington, D. C. *Eng N* 70:681-3 O 2 '13

Water supply

Use of alum in connection with slow sand filtration at Washington, D. C. W. F. Wells. *Eng N* 70:248-9 Ag 7 '13

Washington, D. C., capital traction company

Annual report, 1912. *Elec Ry J* 41:306-7 F 15 '13

Washington, D. C., railway & electric company

Annual report for 1912. *Elec Ry J* 41:1087 Je 14 '13

Profit sharing by Washington railway & electric company, Washington, D. C. *Elec Ry J* 41:87 Ja 11 '13

Washington (state)

Law

Workmen's compensation act and the results of its first year of administration. L. R. W. Allison. Eng N 69:1005-7 My 15 '13

Washington, Baltimore & Annapolis electric railroad

Annual report for 1912. Elec Ry J 41:828 My 3 '13

Washington Irving high school, New York (city)

Washington Irving high school. il Arch & Bldg 45:190-3 My '13

Washington water power company, Spokane, Wash.

Report for the year 1912. Elec W 61:423 F 22 '13

Washouts. See Electric railroads—Damage from floods, etc.

Waste, Disposal of. See Refuse and refuse disposal; Waste products

Waste heat

Generation of steam by waste heat from furnaces. P. Peter. diags Am Inst Min E Bul 84:2775-2803 D '13

Recovery of heat lost in explosion engines. G. Debesson. Am Soc M E J 35:168-91 N '13

Use of waste heat of open hearth furnaces. il plan Iron Age 91:474-6 F 20 '13

Utilizing the waste heat from basis furnaces; various types designed to facilitate melting. J. Horner. plans Foundry 41:113-6 Mr '13

Utilizing waste heat of a small gas engine. plan Power 38:922-3 D 30 '13

Utilization of the waste heat of regenerative furnaces. G. C. Stone. Am Inst Min E Bul 82:2401-2 O '13; Discussion. 84:2893-8 D '13

Waste power

Utilizing power generated in engine tests. A. G. Popcke. Am Mach 38:855-6 My 22 '13

Waste products

By-product ovens for manufacture of coke. C. A. Meissner. diags Iron Tr R 52:1412-5, 1455-7 Je 19-26 '13; Same cond. Met & Chem Eng 11:454-8 Ag '13; Same cond. Eng M 45:722-4 Ag '13; Same cond. Sci Am S 76:290-2 N 8 '13

By-products in electric zinc smelting. W. M. Johnson. il Eng & Min J 96:1157-9 D 20 '13

By-products of retort coke manufacture. C. A. Meissner. Iron Age 91:1365-8 Je 5 '13

Economic combustion of low-grade or waste fuels. D. M. Myers. diags Eng M 45:76-81, 227-40, 358-71 Ap-Je '13

Fresh and decomposed sludge. Eng Rec 68:418-20 O 11 '13

Fresh sludge and decomposed sludge: comparative analyses and discussion of sludge-utilization possibilities. H. Bach and L. C. Frank. Eng Rec 68:331-3 S 20 '13

Power from waste fuel. Sci Am S 75:267 Ap 26 '13

Power machinery of the American steel industry. R. L. Streeter. il Eng M 44:494-510 Ja '13

Pulp and paper and other products from waste resinous woods. F. P. Veitch and J. L. Merrill. U S Bur Chem Bul 159:1-28 '13

Rational utilization of coal. F. E. Junge. Power 37:445-7 Ap 1 '13

Reclamation of non-ferrous metals at Westinghouse electric & mfg. co.'s plant, Pittsburgh. il Foundry 41:130-4 Ap '13

Recoverable values of municipal refuse. G. H. Norton. Munic Eng 45:550-2 D '13

Recovery of by-products in coke manufacture. W. E. Hartman. Iron Tr R 52:799-801 Ap 3 '13

Sawmill refuse as fuel in gas producers. C. E. Snypp. Eng M 44:96-8 O '12

Use of waste heat of open hearth furnaces. il plan Iron Age 91:474-6 F 20 '13

Utilization of hardwood waste. Iron Age 91:1117 My 8 '13

Utilization of waste raisin seeds. Sci Am S 76:55 J1 26 '13

Utilization of waste wood: raw materials. J. E. Teeple. Met & Chem Eng 11:75-6 F '13

Utilization of wood waste: steam distillation. J. E. Teeple. il Met & Chem Eng 11:247-9 My '13

Wood waste utilization: the industry in its relation to expert advice. J. E. Teeple. Met & Chem Eng 11:23-4 Ja '13; Same. Sci Am S 75:99 F 15 '13

See also Coke-oven gas; Flue dust; Metal waste; Refuse and refuse disposal; Scrap metal; Slag; Smelter fumes; Wood waste

Watch making

Watch movement manufacture: methods, machines and special tools used by South Bend watch co. D. T. Hamilton. il diags Mach 19:7-11 S '12

Watches

Watch inspection on high-speed interurban railways in the central West. Elec Ry J 42:501-3 S 27 '13

Water

Water—its properties and practical uses. F. W. Tower. Dom Eng 62:220-2, 336-7, 63; 184-5, 218-9, 308-9, 342-4; 64:96-8, 179-81, 242-4, 304-7, 368-70; 65:43-4, 76-8, 109, 163-4, 196-8, 231-2, 270-1, 368-71 F 22, Mr 22, My 17-24, Je 14-21, J1 26, Ag 16, 30, S 13, 27, O 11-25, N 8-29, D 20 '13

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Analysis

Fallacy of the methylene-blue putrescibility test. A. Lederer. Eng Rec 68:295 S 13 '13

Feed-water treatment. (Engineers' study course) Power 38:580-1, 616-7, 656-7, 694-6 O 21-N 11 '13

Pure and wholesome water. Eng Rec 68:139 Ag 2 '13

Reasons for reporting water analyses in ionic form in parts per million. R. B. Dole. Eng Rec 67:697-9 Je 21 '13

Shipping outfit for feed-water samples. il Eng N 70:819-20 O 23 '13

Standards for hygienic purity of public water supplies. J. W. Ellms. Eng Rec 67:293 Mr 15 '13; Same cond. Eng N 69:521 Mr 13 '13

Value of routine water analysis in sanitary surveys. H. E. Barnard. Eng Rec 68:2-7 S 13 '13

Bacteriology

Practical question in the technic of water bacteriology. Eng N 69:62-3 Ja 9 '13

Water, Distilled

Causes for variation in the quality of distilled-water ice. P. Neff. Power 38:132-3 J1 22 '13; Same. Sci Am S 76:107 Ag 16 '13

Water, Purification of. See Water purification

Water, Sea. See Sea water

Water, Underground

Ground-waters. J. F. Kemp. Am Inst Min E Bul 76:603-24 Ap '13

Public well and water supplies from gravel and sand. Munic Eng 45:70-6 J1 '13

See also Divining rod; Springs; Wells

Water closets

Hopper and washdown closets of different types. F. W. Tower. il Dom Eng 65:163-4 N 8 '13

Principles of the siphon and siphon jet closets. F. W. Tower. Dom Eng 65:196-8 N 15 '13

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Water flow

Application of the flow-summation curve to problems of stream regulation and storage. E. C. Jansen. Eng N 70:1290-1 D 25 '13

Automatic device for rating current meters. G. L. Stroebel. il Eng N 69:1067-8 My 22 '13; Same. Ind Eng 13:279 Je '13

Water flow—*Continued.*

- Circulation through shunted hot water radiators. L. L. Brewster. plan Power 37:158 F 4 '13
- Circulation through shunted hot water radiators. W. L. Durand. Power 37:158 Ap 1 '13
- Directograph pitometer. plan Munic Eng 44: 465-6 My '13
- Experiments on flow of water over model dams. Eng Rec 67:188-9 F 15 '13
- Fire streams from small hose and nozzles. V. R. Fleming. Eng Rec 67:521-3 My 10 '13
- Flow of water in bends; new formula and theory and discussion of other formulae. Eng Rec 68:727-8 D 27 '13
- Flow of water in pipes. W. L. Durand. Power 38:20 J1 1 '13; Same. Eng & Min J 96:322 Ag 16 '13
- Flow of water in pipes; new formula and its application to wood-stave, cast-iron, riveted steel and concrete conduits. E. A. Moritz. Eng Rec 68:667-70 D 13 '13
- Flow of water in shunted radiators. H. A. Kieselbach. Power 38:236 Ag 12 '13
- Flow of water over weirs. B. D. Moses. Power 37:258 F 25 '13
- Flow of water over weirs; correction of B. D. Moses's formulas. R. L. Daugherty. Power 37:682-3 My 13 '13
- Flow over model of Sunol dam. J. N. LeConte. il Eng Rec 68:193-5 Ag 16 '13
- Friction head in backwater problems. I. P. Church. Eng Rec 68:168 Ag 9 '13
- Improved miner's-inch measuring device. il Eng & Min J 95:1098 My 31 '13
- Loss of head in pipe bends. Eng Rec 68:381-2 O 4 '13
- Module or constant-discharge device for irrigation works. plan Eng N 69:502 Mr 13 '13
- Rates of rainfall for storm-sewer calculations. J. A. Cushman. Eng N 69:704-5 Ap 10 '13
- Shunt system of connecting radiators. H. A. Kieselbach. Power 38:723-4 N 18 '13
- Studies of coefficient of friction in reinforced-concrete pipe. Umatilla project, Oregon. H. D. Newell. Eng N 69:504-5 My 1 '13
- Two-dimensional turbine with a consideration of water friction, and its application to the design of blades. V. Kaplan. Am Soc M E J 35:1172-4 J1 '13
- See also* Hot water heating; Hydraulics; Stream flow; Stream measurement; Water gages; Water meters; Water pipes
- Water gage glasses**
- Klinger water glass. plan Power 37:487 Ap 8 '13
- Protection of water gauge glasses. A. M. Gow. plans Locomotive 29:130-6 Ja '13
- Water gage fittings. A. L. Haas. il Int Marine Eng 18:174-5 Ap '13
- Water gages**
- Babcock safety water gage. il Ry & Eng R 53:541 Je 7 '13; Ry Age 54:1611-2 Je 27 '13
- Combo combination water column. diags Power 38:711 N 18 '13
- Continuous recording remote water gage. diag Power 38:52 J1 8 '13
- Delco safety water glass shield. il Ry Age 54:1611 Je 27 '13
- Lunkenheimer monitor automatic water gage. Power 38:348 S 2 '13
- Water hammer**
- Calculation of water-hammer pressures. S. L. Berry. Eng N 70:1144-5 D 4 '13
- Diagram for computing water hammer pressure. F. H. Carter. Eng N 70:616 S 25 '13
- Experience with water hammer. Eng Rec 67: 81-2 Ja 18 '13
- Theory of water hammer. L. Allievi. Am Soc M E J 35:1287-9, 1434-6, 1685-8, 1775-7 Ag-D '13
- Water hammer in pipes and air chambers to prevent it. F. W. Tower. Dom Eng 63: 342-4 Je 21 '13
- Water hammer in steam engines. F. Gyseling. plan Am Soc M E J 35:1057-60 Je '13
- Water ram in water-works distribution systems. Eng N 69:501-5 Mr 13 '13
- Water heaters.** *See* Electric water heaters; Gas water heaters
- Water laws and legislation**
- Bill to provide for state water conservation and state control of dams in Pennsylvania. Eng N 69:676-7 Ap 3 '13
- Newlands river regulation plan. Eng N 70: 470-2 S 4 '13
- Proposed Wisconsin water-power law. Eng Rec 68:59 J1 19 '13
- Wisconsin water power law. Eng N 70:768 O 16 '13
- Water-level indicator.** Long-distance. A. V. Youens. diag Power 38:888-90 D 23 '13
- Water mains.** *See* Water pipes
- Water measurement**
- Measuring water in the power plant. T. K. Roberts. il diag Ind Eng 13:516-21 D '13
- See also* Stream measurement; Water flow; Water gages; Water meters
- Water meters**
- Advantages of meterage system. A. J. O'Keefe. il Munic Eng 45:161-4 Ag '13
- Australian water meter for irrigation supplies. plan Eng N 70:1283 D 25 '13
- Care and maintenance of meters and the effect on revenue. A. W. Cuddeback. Eng N 70:569-70 S 18 '13
- Combined open feed-water heater and hot-water meter. il Power 38:659-60 N 4 '13
- Compensating device for water measurement. diag Power 38:389-90 S 16 '13
- Economics of the water meter. J. Ericson. Eng N 70:1235-6 D 18 '13
- Handling water meters in San Diego. Eng Rec 68:526-7 N 8 '13
- Importance of meter protection. C. E. Titus. Munic Eng 45:175-6 Ag '13
- Large feed-water meters. plan Elec W 61: 538 Mr 8 '13
- Location and setting of water meters. H. M. Lofton. il Munic Eng 45:280-1 S '13
- Maintenance of meters and effect on revenue. A. W. Cuddeback. Eng Rec 68:290 S 13 '13
- Meterage system. H. P. Bohmann. il Munic Eng 44:252 Mr '13
- Prevention of meter freezing. il Munic Eng 45:395-6 O '13
- Pumpage reduced one-half by meters. F. B. Wheeler. il Munic Eng 45:390-1 O '13
- Rating of current meters. J. B. Brown. il diags Eng N 70:712-4 O 9 '13
- Selling water by current meter measurement. J. C. Allison. il Eng N 69:66-70 Ja 9 '13
- V-notch weir method of measurement; discussion of paper by D. R. Yarnall. Am Soc M E J 35:619-22 Ap '13
- V-notch weir method of measuring water; from paper read before Am. Soc. M. E. 1912. D. R. Yarnall. il Eng N 69:248-9 F 6 '13
- Venturi meter coefficients. A. Hazen. Eng N 70:198-202 J1 31 '13
- Venturi meter coefficients. A. T. Safford. Eng N 70:674 O 2 '13
- Water meter and its adaptation. F. W. Tower. il Dom Eng 64:96-7 J1 26 '13
- Water meters as handled by the water meter department. Milwaukee. O. F. Poetsch. Munic Eng 45:369-72 O '13
- Water-waste reduction by meters in Kalamazoo. Mich. Eng Rec 67:302 Mr 15 '13
- See also* Liquid meters; Stream measurement; Water flow; Water gages; Water measurement; Water supply; Water waste; Waterworks
- Water pipes**
- Animal growths in water pipes; troubles and methods of coping with them. S. C. Chapman. Sci Am S 76:90-1 Ag 9 '13
- Cast iron pipe prices from 1900 to 1912. Iron Age 91:49 Ja 2 '13
- Cleaning water mains at Hartford. C. M. Saville. il Eng N 70:1098-100 N 27 '13
- Corrosion of pipes by raw and treated waters. F. E. Hale. Munic Eng 45:334-9 O '13
- Diagram for computing water hammer pressure. F. H. Carter. Eng N 70:616 S 25 '13

Water pipes—Continued.

- Economical development of a water power: including notes on economical diameter of a penstock. F. H. Carter. Eng Rec 68:725-7 D 27 '13
- Electric thawing of frozen water pipes. plan Elec W 61:460-1 Mr 1 '13
- Electric thawing of frozen water pipes. plan Eng Rec 68:272 S 6 '13
- Electrical device for thawing out frozen water pipes. C. P. Hoover. il Eng Rec 67:217-8 F 22 '13
- Experience with wood-stave pipe in irrigation. R. K. Tiffany. il Eng N 69:244-7 F 6 '13
- Ferrum system of wrought piping. il diag Iron Age 92:838-9 O 16 '13; Same cond. ind Eng 13:529-30 D '13
- Flexible submarine piping: designs for a 36-inch line, 10,000 feet long, under New York harbor. A. D. Flinn. Eng M 46:426-8 D '13
- 48-in. cast-iron water main across a salt marsh to Atlantic City. T. C. Hatton. il Eng N 70:1046-9 N 20 '13
- Insulating wrappings for large water mains. il Eng N 70:1083 N 27 '13
- Life of water pipe in Vancouver. Eng Rec 68:521 N 8 '13
- Locating leaks in water mains. il Munic Eng 45:329-31 O '13
- Locating leaks in water mains. F. J. Hoxie. diag Eng Rec 68:291 S 13 '13
- New device for locating leaks in water mains: pulsograph. il Eng N 70:515 S 11 '13
- New sixty-inch water-supply conduit at Denver. il Eng Rec 67:60-2 Ja 18 '13
- Prevention of the corrosion of iron water pipes. W. F. Montfort. Eng N 70:570-1 S 18 '13
- Self-contained electric pipe-thawing outfit. Elec W 61:420 F 22 '13
- Sizing pipe for gravity hot-water heating. Power 38:570-2 O 21 '13
- Steel pipe details. J. B. Scott. il diag Iron Age 91:1368-9 Je 5 '13
- Thawing water pipes by electricity in Evanston. C. C. Saner. il Munic Eng 44:355-6 Ap '13
- Typhoid epidemic caused by uncalked joints in an intake pipe. W. M. Cobleigh. Eng N 69:720-1 Ap 10 '13
- See also* Aqueducts; Hot water heating; Pipe joints; Pipe laying; Pipes; Water flow; Water hammer; Water waste; Waterworks

Water pollution.

- Animal growths in water pipes: troubles and methods of coping with them. S. C. Chapman. Sci Am S 76:90-1 Ag 9 '13
- Appendix to Royal commission on sewage disposal's eighth report. Eng Rec 68:315-6 S 20 '13
- Committee report of Am. public health association on river cleaning. Eng N 70:760-1 O 16 '13
- Drainage area and population of the Ohio river valley and pollution of the Ohio river. A. H. Horton. Eng N 69:186-7 Ja 23 '13
- Dual water-supplies and typhoid fever at Philadelphia. Eng N 70:1022-3 N 20 '13
- International investigation of the pollution of boundary waters between the U. S. and Canada. Eng N 70:669 O 2 '13
- Opinions relative to stream pollution. Eng Rec 67:643-6 Je 7 '13
- Pollution of Niagara river. Eng Rec 68:373-4 O 4 '13
- Sanitary control of waterways. Eng Rec 68:293 S 13 '13
- Sewage-pollution decision in Michigan. Eng Rec 67:721-2 Je 28 '13
- Studies of fish life and water pollution: paper read before the International congress of applied chemistry, Sept., 1912. H. W. Clark and G. O. Adams. Eng N 69:300-2 F 13 '13
- Water and air movement in relation to the contamination of the lake water-supply of Auburn. N. Y. Eng N 70:356-7 Ag 21 '13
- See also* Filters and filtration; Sewage; Sewage disposal; Water—Analysis; Water purification; Water supply

Water power

- Commercial opportunities for the utilization of water power. E. A. Lof. il Eng M 45:506-11 Jl '13
- Determining power possibilities on a watershed. L. A. Whitst. Eng N 70:496-500 S 11 '13
- Economical development of a water power: including notes on economical diameter of a penstock. F. H. Carter. Eng Rec 68:725-7 D 27 '13
- Problem of finding the proper turbine capacity to be installed at a water-power site. C. Herschel. Eng N 70:462-3 S 4 '13
- Small water powers. Eng Rec 67:567 My 24 '13
- See also* Flumes; Hydraulic engineering; Hydroelectric plants; Hydroelectric power; Tide power; Turbines; Water rights; Water wheels

California

- Hydro-electric development in California. J. A. Britton. il Sci Am S 76:72-4 Ag 2 '13

Idaho

- Thousand Springs power plant. il Eng Rec 68:489-90 N 1 '13

New York (state)

- New York bills for state hydroelectric schemes. Elec W 61:555-7 Mr 15 '13
- New York hydroelectric development. R. P. Bolton. Elec W 61:786-7 Ap 12 '13
- New York hydroelectric plans, second N. E. L. A. analysis. Elec W 61:659-60 Mr 29 '13
- New York state hydroelectric scheme. Eng Rec 67:394 Ap 12 '13
- Secretary Stimson's suggestion as to Niagara Falls. Met & Chem Eng 11:117-8 Mr '13

United States

- Action of the 5th National conservation congress. Elec W 62:1096-8 N 29 '13
- Federal water power policy: summary of report of Sec. of Interior. Eng Rec 67:2-3 Ja 4 '13
- Harnessing the public water power. C. J. Blanchard. il Sci Am 108:310-1 Ap 5 '13
- Measuring the flow of a stream. R. H. Byrd. il Sci Am 108:268-9 Mr 22 '13
- National conservation congress, Washington, Nov. 18-20, 1913; 5th annual session. Power 38:839-40 D 9 '13
- National conservation congress: proceedings. Elec W 62:1039-40 N 22 '13
- National conservation congress: proceedings. Eng Rec 68:sup53 N 22 '13
- National conservation congress: report of Committee on water power. Eng N 70:1106-7 N 27 '13
- Permit for development of power on Pend d'Oreille river. Eng Rec 68:145-6 Ag 9 '13
- Same. Elec W 62:333-4 Ag 16 '13
- Recommendations adopted by fifth National conservation congress. Eng Rec 68:601-2 N 29 '13
- Suggestions on utilizing the power of the Missouri. W. Johnson. Sci Am 109:111 Ag 9 '13
- Water-power situation. L. Bell. Elec W 61:6-7 Ja 4 '13

Wisconsin

- Effect of proposed storage reservoirs on stream flow and water power on the lower Chippewa river, Wis. C. B. Stewart. map Eng N 70:246-8 Ag 7 '13
- Proposed Wisconsin water-power law. Eng Rec 68:59 Jl 19 '13
- Wisconsin water power law. Eng N 70:768 O 16 '13

Water pressure. See Hydraulics**Water purification**

- Abuse of water-purification plants. Eng Rec 68:719 D 27 '13
- Algae in the water-works reservoir at Quincy, Ill. W. R. Gelston. Eng N 69:835 Ap 24 '13
- Algae in water. B. S. Hanson. Power 38:399-10 Ag 26 '13
- Application of ozone to water purification. Met & Chem Eng 11:373-4 Jl '13

- Weather bureau.** See United States—Weather bureau
- Weather forecasts**
 Chimerical weather forecasting. *Sci Am* 109: 332 N 1 '13
 Forecasting barometric changes. map Colliery 33:479-80 Ap '13
 Germany's aeronautical weather bureau. *Sci Am* 108:262 Mr 22 '13
 Meteorological service of Australia. *Sci Am* 109:224 S 20 '13
- Weaving**
See also Textile industry and fabrics
- Weed burners**
 Cost of burning weeds in Oklahoma. *il Elec Ry J* 42:465 S 20 '13
 Wayco railroad weed burner. *il Elec Ry J* 42: 272 Ag 16 '13
- Weeds**
 Killing weeds with chemicals. *il Ry Age* 54:508-9 Mr 14 '13
 Weed burner in Los Angeles. *il Elec Ry J* 41:1169 Je 28 '13
- Weighing**
 Weighing investigation by the Interstate commerce commission, at Chicago. *Ry Age* 54:442-4 Mr 7 '13
 Weighing methods on an eastern trunk line. *Ry Age* 54:392-4 My 2 '13
 Weighing methods on the St. Louis & San Francisco. *Ry Age* 54:147-9 Ja 24 '13
- Weighing freight cars.** See Freight cars
- Weighing machines**
 Avery automatic liquid scales. *il Power* 37: 360 Mr 11 '13
See also Track scales
- Weighmasters**
 Ordinance regulating weighmaster. *Munic Eng* 45:138-9 Ag '13
- Weights and measures**
 Calculating weight per cubic inch of alloys. W. L. Tryon. *Am Mach* 38:873 My 22 '13
 English decimal system of weights and measures. P. S. Bond. *Eng Rec* 67:332 Ap 5 '13
 Formulas for finding the weights of castings. W. L. Tryon. *Foundry* 41:386a S '13
 System of weights and measures. C. A. Briggs. *Eng Rec* 67:507-8 My 3 '13
See also Carat; Mensuration; Metric system
- Weinman, Adolph Alexander, 1870-**
 Sculptor of monumental architecture. C. H. Dorr. *il Arch Rec* 33:518-32 Je '13
- Weirs.** See Dams
- Welding**
 Autogenous welding in locomotive fireboxes. N. H. Abisoulh. *diags Ry Age* (Mech ed) 87:576-2 D '13
 Autogenous welds for boiler work. *il Locomotive* 29:259-63 O '13
 Indianapolis traction & terminal company's experience with oxy-acetylene welding. *il Elec Ry J* 41:38-9 Ja 4 '13
 Joining of metals. A. E. Tucker. *Metal Ind* 9:8 11:128-9, 217-8 Mr, My '13
 Marine repairs by thermit welding. *Int Marine Eng* 18:43 Ja '13
 Mechanical and electric traction on the Paris streets. J. Boyer. *il Eng M* 44:65-9 O '12
 Oxweld cutting and welding process. *il Ry & Eng R* 53:579-1 Je 14 '13
 Oxy-acetylene and electric welding. *Ry Age* (Mech ed) 87:315-6 Je '13
 Oxyacetylene boiler welding. II: Cave. *il Power* 38:290-2 D 30 '13
 Oxy-acetylene welding and cutting in European commercial and railway repair establishments. H. W. Jacobs. *il Ry Age* 54:175-8 Mr 14 '13
 Oxyacetylene welding and cutting operations. *il Eng N* 69:1062-3 My 22 '13
 Portable 300-ampere multiple unit welding machine. *il Iron Age* 92:132-4, 11 17 '13
 Repairing a 12-in. shaft without removal. *il Eng & Min J* 95:1281-2 Je 28 '13
 Selection of operators for oxy-acetylene welding. J. C. Reid. *Am Eng* 87:243 My '13
 Simplified form of thermit rail welding. *il Elec Ry J* 41:76-7 Ja 11 '13
 Thermit for naval use. L. E. Browne. *il Sci Am S* 76:116 Ag 23 '13
 Welding and cutting with oxygen and illuminating gas. *il Ry Age* 55:196-7 Ag 1 '13
 Welding broken iron light poles. *il Iron Age* 51:1115 My 8 '13
 Welding hollow drill steel. *il Eng & Min J* 95:121-2 F 22 '13
 Welding hollow drill steel. *Eng Rec* 67:209 F 22 '13
 Welding locomotive boiler tubes. *Power* 38: 109-10 J 15 '13
 Welding nickel. *il Sci Am S* 76:256 O 18 '13
 Welding of steam boilers. 11. Jaeger. *Am Soc M E J* 35:1060-2 Je '13
 Welding repairs to boilers. *Sci Am S* 76:83 Ag 9 '13
 Welding superheater tubes. *Ry Age* (Mech ed) 87:315 Je '13
See also Electric welding; Solder and soldering
- Welding, Electric.** See Electric welding
- Welfare work in industry**
 Bathing facilities in industrial plants; physiological benefits of hot and cold baths. T. Darlington. *il Eng M* 46:428-30 D '13
 Calumet & Hecla social service work. *Eng & Min J* 96:686 O 11 '13
 Co-operation in the Buick plant. *il Automobile* 29:1193 D 25 '13
 Economy of a works hospital system. *Sci Am S* 75:356 Je 7 '13
 Efficiency increased by workmen's lunch room. *Iron Age* 92:1245 N 27 '13
 Employees' activities at Cleveland crane & engineering co.'s plant. Wickliffe, O. F. 14. Prentiss. *il Iron Age* 91:710-1 Mr 20 '13
 Furnishing tea for workmen. *il Ind Eng* 13: 369-70 S '13
 German factory savings banks. C. Kohlmann. *Am Mach* 38:762 My 8 '13
 Interest in employees beyond the works. *Iron Age* 91:834-5 Ap 3 '13
 Living conditions on the Lake Superior ranges. *il Iron Tr R* 52:245-8 Ja 23 '13
 New Year's statement by President Vail concerning sick benefits, etc. for employees of the American telephone and telegraph co. and of the Western union telegraph co. *Elec R & W Elec'n* 62:82 Ja 11 '13
 Provisions for employees in works of the Underwood typewriter. J. Stedman. *il Iron Age* 92:706-8 O 2 '13
 Rational mine sociology; amusement hall of the H. C. Frick coke co. *il Mines & Min* 33:303-4 Ja '13
 Republic rubber company builds clubhouse. *il Automobile* 29:78 J 10 '13
 Tea kitchen in a German shop. *il Iron Age* 92:284-5 Ag 7 '13
 Ten-cent protective system. D. McKillop. *Mach* 19:952-3 Ag '13
 Trained nurse in welfare work. *Iron Tr R* 52:915-6 Ap 17 '13
 Welfare of employees. *Eng & Min J* 95:1041-2 My 24 '13
 Welfare work at the Utica drop-forge & tool co.'s shop. Utica, N. Y. *il Mach* 19: 502-3 Mr '13
 Welfare work in American rolling mill co., Middletown, O. *il Iron Age* 91:760-2 Mr 27 '13
 Welfare work of the steel corporation. *Eng & Min J* 95:1185 Je 14 '13
 Welfare work on Brooklyn rapid transit system. H. A. Bullock. *Elec Ry J* 12:825-7 O 15 '13
 Welfare work raises Goodyear co.'s efficiency. Automobile 28:1318-9 Je 26 '13
 Westchester electric railway building for employees. Mount Vernon, N. Y. *il plan Elec Ry J* 42:971-2 N 1 '13
See also Coal miners; Factory sanitation; Mine sanitation
- Welland ship canal**
 New Welland ship canal. plan map *Eng N* 70:598-602 S 25 '13

Welland ship canal—Continued.

Proposed Welland ship canal. map Eng Rec 68:35-6 J1 12 '13

Wells

Auxiliary deep-well water-supply with electric pumps. diag Eng N 70:346-7 Ag 21 '13
Connecting a shallow well to a deep well with dynamite. Eng Rec 67:194-5 F 15 '13
Sanding in well screens, casing and pipes. L. J. Putnam. diag Ry Age 54:1099 My 16 '13

Yield of limestone and sandstone wells. il Munic Eng 45:36-40 J1 '13

See also Artesian wells; Gas, Natural; Petroleum; Springs; Water, Underground

Wendt, Edwin F.

Sketch. por Ry & Eng R 53:466 My 17 '13

West End consolidated mining co., Tonopah, Nev.

Summary of the annual report for year ended Mr. 31, 1913. Eng & Min J 96:1076 D 6 '13

West Virginia mining institute

Morgantown meeting, June, 1913. Colliery 34: 56-7 Ag '13

Western association of electrical inspectors

Annual convention, 1913; list of committees and speakers. Elec R & W Elec'n 62:94-5 Ja 11 '13

Eighth annual convention, 1913. Elec W 61: 286-8 F 8 '13

Westinghouse, George, 1846-

Westinghouse receives Grashof medal. por Elec W 62:1145-6 D 6 '13

Westinghouse electric & manufacturing company

Annual report for year ending March 31, 1913. Elec Ry J 41:944 My 24 '13

Westinghouse turbines

Recent developments in steam turbines. H. T. Herr. il plans J Fr Inst 175:273-88 Mr '13

Wharves

Economical wharf-bulkhead. W: M. Torrance. il Eng N 70:710-2 O 9 '13

See also Docks; Piles and pile driving

Wharves, Concrete

Reinforced-concrete wharf with grouted foundations; harbor improvement at Iloilo. P. L. W. T. Howe. il Eng N 70:1003-10 N 20 '13

Wheel guards

Fender and wheel-guard tests in Vancouver. Elec Ry J 42:968-9 N 1 '13
Paris bus company tests splashguards. il Automobile 29:253 Ag 7 '13

Wheeling & Lake Erie railroad

Resurvey of the Wheeling & Lake Erie. D. M. Taylor. maps Ry & Eng R 53:1060-3 N 15 '13

Wheels

Ashton wheel press recording gage. il Ry Age (Mech ed) 87:447 Ag '13

Cast-steel wheels for trucks. diags Automobile 28:805-6 Ap 10 '13

Drop test of heat-treated chrome-vanadium wheels. Ry Age 55:573-4 S 26 '13; Same. Ry & Eng R 53:940 O 4 '13

History and problems of the steel wheel. J. C. Neale. Iron Tr R 53:777-80 O 30 '13

Increase of bore of high-speed wheels of centrifugal stresses; abstract and discussion of paper by S. A. Moss. Am Soc M E J 35: 623-8 Ap '13

Increase of bore of wheels by centrifugal stresses. diag Mach 19:520-3 Mr '13

Repairing a large rope sheave. H. L. Handley. diags Colliery 33:604-5 Je '13

Road tests of chrome-vanadium wheels. Iron Age 91:485 F 20 '13

Steel-tired, forged and rolled-steel wheels. M. D. Hayes. Elec Ry J 42:1101-4 N 22 '13

See also Automobiles—Wheels; Axles; Car wheels; Emery wheels; Flywheels; Gearing; Grinding wheels; Motor trucks—Wheels; Propellers; Pulleys; Snow-plows; Tires; Turbines; Water wheels

Whip (drama)

"Whip" and its mechanism: a ponderous melodrama. il Sci Am 108:89 Ja 25 '13

Whistles

Shape and sound in whistles. G. Michaud. il Sci Am 108:542 Je 14 '13

White, Sir William, 1845-1913

Sketch. Sci Am 108:238 Mr 15 '13

White Island, New Zealand

White Island sulphur deposit. il Eng & Min J 96:815-7 N 1 '13

White lead

Handling white lead; a sanitary mechanical system for eliminating dust. il Sci Am S 76:34 J1 19 '13

Manufacture of sublimed white lead. J. A. Schaeffer. il Eng & Min J 95:411-2 F 22 '13

White lead and oxides in 1912. Eng & Min J 95:66-7 Ja 11 '13

Whitedamp

Gases met with in coal mines. Colliery 33: 492-3 Ap '13

Whitewash

Light house whitewash. Concrete Cem 3:172-3 O '13

Wild rice

How the Indians harvest wild rice. Sci Am 108:365 Ap 19 '13

Willemstad, Curaçao

Improving a harbor of Curaçao. H. C. Plummer. map il Sci Am 108:474-5 My 24 '13

Wilmington, Delaware**Harbor**

Dredging problems in Wilmington harbor, Delaware. R. R. Raymond. map Eng N 69: 938-41 My 8 '13

Wilson, William Bauchop, 1862-

Coal miner in the U. S. cabinet. Colliery 33: 520 Ap '13

Winches

Power winches for hauling trailers. diag Automobile 29:559 S 25 '13

Winchester cathedral

Saving a cathedral with a diver: how Winchester was furnished with a new foundation. J. W. Overend. il Sci Am 108:428 My 10 '13

Wind. See Winds**Wind pressure**

Stream lines around obstacles to air currents. il Sci Am S 75:268-9 Ap 26 '13

Two common faults in detailing windbracing. H. Arthur. plan Eng N 69:572-3 Mr 20 '13

Wind pressure on ocean liners. Sci Am 109: 158 Ag 30 '13

Wind stresses in buildings. C. T. Morris Eng N 69:862-3 Ap 24 '13

Windbracing without diagonals for steel-frame office-buildings. R. Fleming. Eng N 69:492-6 Mr 13 '13

Windbreaks

Tree windbreaks to replace portable snow fences. il Eng Rec 68:47 J1 12 '13

Windbreaks, Concrete

How to build concrete wind break fences. il Concrete Cem 2:185-6 Ap '13

Windmills

Future of the windmill. Sci Am 108:309 Ap 5 '13

Windows

Returning to the casement window. A. T. Covell. il Arch Rec 33:435-43 My '13

Winds

Distribution of wind velocity around a rod. J. T. Morris. diags Sci Am S 76:252-3 O 18 '13

Temperature equivalent of wind velocities. Elec R & W Elec'n 62:108-9 Ja 11 '13

Wind structure. W: J. Humphreys. J Fr Inst 175:229-41 Mr '13

See also Tornadoes

Windshields

Windshields. il Automobile 28:364-5 Ja 30 '13

Winnipeg**Water supply**

Proposed Shoal Lake or Greater Winnipeg aqueduct. Eng N 70:628-30 S 25 '13

Wire

Four-slide tools for a wire-forming job. C. L. Lucas. il diag Mach 19:773-1 Je '13
Making steel wire belt lacing. il Mach 20: 194-6 N '13
Morgan safety device for wire drawing blocks. il plan Iron Tr R 53:876-7 N 13 '13
Sawing a bridge with a wire. J. Boyer. il Sci Am 109:228 S 20 '13
Wire and wire rods. K. B. Lewis. il plans diags Iron Tr R 53:581-9, 633-5, 685-7, 735-7, 781-4 O 2-30 '13
Wire drawing: methods and machines used in manufacture. E. V. Oberg. il Sci Am S 75:184-6 Mr 22 '13
Wire industry. Sci Am 109:78 J1 26 '13

See also Cables; Electric wire and wiring

Wire rope

Bending stresses in hoisting rope. Eng & Min J 95:797-8 Ap 5 '13
Chart for calculating hoisting ropes. Eng & Min J 95:616 Mr 22 '13
Efficiency of wire rope fastenings. Eng & Min J 95:472 Mr 1 '13
Hoisting ropes. W. D. Lloyd. Colliery 33: 578-9 My '13
Hoisting ropes in actual performance. Eng & Min J 95:10:5-6 My 31 '13
Method of calculating size of hoisting rope. Eng & Min J 95:997-8 My 17 '13
Strength of wire rope drums. R. H. Crevoisier. Mach 19:580 Ap '13
Wire mill and rope works of the Macomber & Whyte rope co. at Kenosha, Wis. plan Iron Tr R 52:249-50 Ja 23 '13

Wire spokes

Waterbury Farrel wire spoke machines. il Mach 19:899-10 Je '13

Wireless telegraph

American-brench radio time signal experiments. Sci Am 109:455 D 13 '13
Antenna resistance. L. W. Austin. U S Bur Stand Bul 9:65-72 Mr 15 '13
Apparatus for automatic transmission and reception of wireless messages. L. Fournier. il diag Sci Am 109:458 D 13 '13
Best wave-length for wireless. Elec R & W Elec'n 62:105 Ja 11 '13
Commercial wireless telegraph development. J. Bottomley. Elec W 61:25-6 Ja 4 '13
Construction of a one-kilowatt closed core wireless transformer. il Sci Am 109:288 O 11 '13
Determining position at sea by wireless. J. Erskine-Murray. il Eng M 41:949-51 Mr '13
Experiments with umbrella antenna. J. O. Mauborgne. Elec W 61:47 Ja 4 '13
Fessenden wireless patents upheld by U. S. Circuit court of appeals. Elec W 62:939 N 8 '13
Fort Myer wireless telegraph station. D. H. Tuck and M. B. Hodgson. il Elec W 61:145-6 Ja 18 '13; Eng M 44:943-6 Mr '13
Great world wireless circuit. J. F. Springer. il Sci Am 109:488 D 27 '13
Heterodyne receiving system. Elec W 61: 1238 Je 14 '13
High-frequency alternators for radio-telegraphy. Elec W 62:934 N 8 '13
High-frequency generator for wireless telegraphy and telephony. E. F. W. Alexander-son. il Sci Am S 75:328-30 My 24 '13
Local absorption in radiotelegraphy. Elec W 61:331 F 15 '13
Local absorption in radiotelegraphy. A. H. Taylor. Elec W 61:350 F 15 '13
Long-distance radio-telegraphy. Elec W 61: 127 Ja 18 '13
Nature of radio-telegraph waves. Sci Am 109:240 S 27 '13
Navy to determine longitude by wireless; also speed of Hertzian waves. L. E. Browne. Sci Am 109:103 Ag 2 '13
Problems in wireless telegraphy. J. A. Fleming. Sci Am S 75:301-3 My 10 '13

Quantitative results of recent radio-telegraphic tests between Arlington, Va., and U. S. S. Salem. J. L. Hogan, jr. Elec W 61:1361-6 Je 21 '13

Time signals by wireless telegraphy: hourly signals transmitted from the Eiffel tower and the accurate determination of longitude by these means. G. Ferrié. Eng M 45:719-21 Ag '13

United States navy wireless station, Arlington, Va. il Elec W 61:721-4 Ap 5 '13

Wireless and sound signals as aids to navigation. L. E. Browne. il Sci Am 109:59 J1 19 '13

Wireless and weather. A. H. Taylor. maps Elec W 62:425-7 Ag 30 '13

Wireless for railroad trains. il Sci Am 109: 432 D 6 '13

Wireless telegraph transmission towers. J. Stedman. il Iron Age 92:891-2 O 23 '13

Wireless telegraphy and telephony in 1912. Elec R & W Elec'n 62:8-9 Ja 4 '13

Wireless telegraphy for railway trains. Eng N 70:1246 D 18 '13

See also Synchronizers

Wireless telephone

High-frequency generator for wireless telegraphy and telephony. E. F. W. Alexander-son. il Sci Am S 75:328-30 My 24 '13

Wireless train control. E. C. Coleman. Sci Am 109:428 D 6 '13

Wiring. Electric. See Electric conductors; Electric wire and wiring

Wisconsin**Capitol**

Dome of the Wisconsin capitol. il plans Eng N 70:389-95 Ag 28 '13

Law

Wisconsin water power law. Eng N 70:768 O 16 '13

Wisconsin electrical association

Account of annual meeting, 1913, and abstracts of papers. Elec Ry J 41:106-15 Ja 18 '13

Fifth annual meeting, Milwaukee, 1913. Elec W 61:181-3 Ja 25 '13

Wisconsin master plumbers' association

15th annual convention, Milwaukee, Jan., 1913. il Dom Eng 62:194-9 Ja 25 '13

Wisconsin public service commission

Commission control of public utilities. Elec W 62:531-3 S 13 '13

Wisconsin railroad commission

Functions of a technical staff in the regulation of public utilities. W. D. Pence. Eng Rec 67:260-2 Mr 8 '13; Same cond. Elec W 61:489 Mr 8 '13

Witnesses

See also Engineers as witnesses

Wolverine (warship)

Old-time war vessel, Wolverine, on the Great Lakes. N. Wilber and L. Isaacs. il plans Int Marine Eng 18:524-30 D '13 (to be cont)

Woman**Employment**

Rutherford, N. J., has a woman plumber. Dom Eng 64:241 Ag 30 '13

Women as typewriters

Are men better typists than women? C. E. Smith. Sci Am 109:441 N 29 '13
Are men better typists than women? scientific tests made by J. M. Lahy. J. Boyer. il Sci Am 109:216 O 25 '13

Wood

Against the sun: spiral twists in nature. A. H. Kennedy. il Sci Am S 75:396-7 Je 21 '13

How to select and care for pattern lumber. E. F. Lake. Foundry 41:434-6 O '13

Mechanical properties of woods grown in the United States; summary of tests. U S Forest Serv Circ 213:1-4 '13

Merits of different woods for street paving. H. G. Davis. Eng N 69:302 F 13 '13

Pith-ray flecks in wood. H. P. Brown. bibliog il U S Forest Serv Circ 215:5-15 '13

Wood --Continued.

Popular ignorance about our common woods. Sci Am 108:153 F 15 '13
 Resonance in wood. Sci Am 109:190 S 6 '13
 Uses of commercial woods of the United States. H. Maxwell. U S Agric Bul 12:1-56 '13

See also Forests and forestry; Lumber; Planing mills; Sawmills; Timber; Wood preservation; Wood pulp; Wood waste; Woodwork; also Fir; Gambia mahogany; Greenheart; Larch; Oak; Mangrove

Wood distillation

Chemical treatment of waste wood. H. K. Benson. il Sci Am S 75:363-5 Je 7 '13
 Utilization of wood waste: steam distillation. J. E. Teeple. il Met & Chem Eng 11: 247-9 My '13

Wood finishing

See also Lacquer; Painting; Structural

Wood pavements. *See* Pavements, Wood

Wood pipe. *See* Pipes, Wood

Wood preservation

American wood preservers' assn., 1913: concluding sessions. Elec Ry J 41:220-1 F 1 '13

American wood preservers' assn., 9th annual convention, 1913. Ry & Eng R 53:78-81 Ja 25 '13

Am. wood preservers' association: report of 9th annual convention, 1913. Eng Rec 67: sup 40-1 F 1 '13

American wood preservers' convention: abstracts of papers presented at the ninth annual meeting. Ry Age 54:164-76 Ja 21 '13

American wood preservers' convention, 1913: with abstracts of four papers by H. F. Weiss, J. H. Waterman, H. Von Schrenk, and H. G. Davis. Elec Ry J 41:150-5 Ja 25 '13

Annual convention of American wood preservers assn., 1913. Eng N 69:226-7 Ja 30 '13

Baltimore & Ohio timber-treating plant, Green Spring, W. Va. F. J. Angier. il plan Eng Rec 67:572-4 My 21 '13; Same. Ry & Eng R 53:451-3 My 17 '13; Same. Eng N 63:1182-3 Je 5 '13

Comparative economy of treated ties. R. J. Parker. Ry Age 54:1083-5 My 16 '13

Condition of experimental telegraph poles, treated and untreated, after eight years' service. C. H. Teesdale. Eng N 70:1084-6 N 27 '13

Creosoted wood blocks for factory and warehouse floors. F. A. Weaver. Eng Rec 68:185-6 Ag 16 '13

Creosoted wood blocks for floors. E. A. Sterling. Eng M 44:276-8 N '12

Creosoting plant near Connellsville, Pa. il Ry Age 51:510-1 Mr 14 '13

Development and status of the wood preserving industry. E. A. Sterling. il Sci Am S 76:24-7 J1 12 '13

Effect of initial air pressure on penetration of creosote. R. S. Belcher. Eng Rec 67: 299 Mr 15 '13

Experiments in the preservative treatment of cross-ties. Eng Rec 67:728-9 Je 28 '13

Experiments in the preservative treatment of red-oak and hard-maple cross-ties. F. M. Bond. il U S Forest Serv Bul 126:9-12 '13

Galesburg tie plant of the C. B. & Q. il plan Ry Age 54:206-9 Ap 18 '13

Light versus heavy treatment of timber. W. F. Goltra. Ry Age 54:153 Ja 21 '13

Long life of untreated timber in trestles. Eng Rec 68:542 N 15 '13

Natural and artificial seasoning of Douglas fir for treatment. F. D. Beal. Ry & Eng R 53:142-3 F 15 '13

Powell saccharine process for preserving timber. R. E. Neale. Ry & Eng R 53:143-4 D 13 '13; Same cond. Eng M 46:437-9 D '13

Present status of timber preservation. Elec Ry J 41:182 F 1 '13

Preservation of lumber for car construction. J. H. Waterman. Ry & Eng R 53:101 F 1 '13

Preservation of poles by kyanizing. Ry & Eng R 53:1054 N 15 '13

Preservation of timber. Ry Age 53:791-3 O 24 '13

Preservation of timber: abstracts of three papers by H. Von Schrenk, F. M. Bond, and H. F. Weiss at annual meeting of American wood preservers' assn., Jan. 1913. Eng Rec 67:108-10 Ja 25 '13

Preservation of wood. Sci Am 108:563 Je 21 '13

Preservation tests on poles. Eng & Min J 45:88 Mr 3 '13

Preservative treatment of poles. R. A. Griffin. Eng N 70:61-2 J1 10 '13

Railroad ties purchased in 1911. Ry & Eng R 53:756-7 Ag 9 '13

Report of committee of American railway engineering assn. on wood preservation. Ry Age 51:624-5 Mr 20 '13

Requirements for successful timber treatment. H. Von Schrenk. Ry & Eng R 53: 141-2 F 15 '13

Ties bought and treated in 1911. Eng Rec 68: 182 Ag 16 '13

Timber treating plant of the Baltimore & Ohio. F. J. Angier. il Ry Age 51:1569-72 Je 20 '13

Treated versus untreated ties. R. J. Parker. Eng M 45:741-4 Ag '13

Treating plant for Central of Georgia. il plan Ry Age 54:241-3 F 21 '13

Treatment of Douglas fir with creosote oil. G. A. Coleman. Ry Age 54:346-7 F 21 '13

Wood preservation with asphaltic material. Munk. Eng 44:192-3 Mr '13

See also Creosote; Dry rot

History

History of wood preservation. W. F. Goltra. Ry Age 54:169-70 Ja 24 '13

Wood preservers' association. *See* American wood preservers' association

Wood pulp

Grinding of spruce for mechanical pulp. J. H. Thickens. il U S Forest Serv Bul 127:1-54 '13

How trees are converted into paper. T. J. Keenan. il Sci Am 109:256-8 O 4 '13

Octopus of the spruce forest. W. H. Kemper. il Sci Am S 76:216-7 O 4 '13

See also Paper

Wood waste

Chemical treatment of waste wood. H. K. Benson. il Sci Am S 75:363-5 Je 7 '13

Economic combustion of low-grade or waste fuels. D. M. Myers. diags Eng M 45:227-40 My '13

Installation of a power plant of 100 H. P. in factory having large quantities of wood waste available. R. E. Mathot. Am Soc M E J 35:322-4 F '13

Pulp and paper and other products from waste resinous woods. F. P. Veitch and J. L. Merrill. U S Bur Chem Bul 159:1-28 '13

Utilization of hardwood waste. Iron Age 91: 1117 My 8 '13

Utilization of waste wood: raw materials. J. E. Teeple. Met & Chem Eng 11:75-6 F '13

Utilization of wood waste: steam distillation. J. E. Teeple. il Met & Chem Eng 11: 247-9 My '13

Wood waste utilization: the industry in its relation to expert advice. J. E. Teeple. Met & Chem Eng 11:23-4 Ja '13; Same. Sci Am S 75:39 F 15 '13

See also Sawdust

Woodwork

Industrial methods of bending wood. Sci Am S 76:160 S 6 '13

See also Planing mills

Woodworking machinery

Equipment needs of lumber manufacturers. Iron Age 91:774-5 Mr 27 '13

See also Lathes; Planing machines; Saws

Woodworking shops

New woodworking shop of Omaha & Council Bluffs street railway. il plans Elec Ry J 41:750-2 Ap 26 '13

Wool

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Woolen and worsted manufacture

Pulled wool or shoddy. H. Priestman. *Sci Am* 53:223-4 Ap 5 '13

Woolen industry and the tariff. J. E. Fletcher. *Am Ind* 13:26 Ja '13

See also Textile industry and fabrics

Woolworth building, New York (city)

Description. C. Gilbert. *il plans Arch & Bldg* 45:277-99 Jl '13

Design of the Woolworth building. S. F. Holtzman. *il plans Eng Rec* 68:22-4 Jl 5 '13

Power plant of Woolworth building. T. Willson. *il plans Power* 37:884-9 Je 24 '13

Tallest office building in the world. *il Sci Am* 108:224-5 Mr 8 '13

Towers of Manhattan and notes on the Woolworth building. M. Schuyler. *il Arch Rec* 33:8-122 F '13

Vacua hot-water heating applied to Woolworth building. I. N. Evans. *plans Power* 38:614-8 N 1 '13

Water-supply system in the fifty-five-story Woolworth building, New York. *plan Eng Rec* 68:44-5 Jl 12 '13

World's highest office building; elevator equipment, safety features, generating plant and wiring. C. E. Knox. *il diagrs Elec W* 62:125-31 Jl 19 '13

Worcester consolidated railway company

Hydroelectric energy for Worcester railway system. *il map Elec W* 62:685-8, 737-40 O 4-11 '13

Word division

Word-division. F. H. Teall. *Inland Ptr* 52:426-7 D '13

Worde, Wynkyn de, d. 1534

Printers of note. W. C. Bleloch. *il Inland Ptr* 51:681 Ag '13

Words

See also Compound words; Synonyms and antonyms; Word division

Working day. See Hours of labor**Workmen's compensation**

Development of compensation legislation. F. C. Schwedman. *Am Ind* 13:25 Ja '13

Discussion by National founders' association. *Iron Tr R* 53:992-5 N 27 '13

Messages of the governors. *Elec Ry J* 41:74-5, 169-1 Ja 11, 25 '13

Model compensation acts. *Am Ind* 13:24-6 F '13

Ohio compensation law declared defective. *Iron Age* 91:374-5 F 6 '13

Ohio's compulsory liability insurance law. *Iron Tr R* 52:584 Mr 6 '13

Operation of workmen's compensation laws. *Iron Age* 92:1248-51 N 27 '13

Washington workmen's compensation act and results of its first year of administration. L. R. W. Allison. *Eng N* 69:1995-7 Mv 15 '13

Workmen's compensation. *Ry & Eng R* 53:913 S 27 '13

Workmen's compensation act of the state of Washington. J. T. Rupli. *Elec Ry J* 42:138-9 Jl 26 '13

Workmen's compensation and employer's insurance in California. *Eng & Min J* 95:1274-6 Je 28 '13

Workmen's compensation laws. A. Belmont. *Elec Ry J* 41:214-5 F 1 '13

Workmen's compensation laws in the United States. C. E. Hodges. *Ind Eng* 13:61-4 F '13

Workmen's compensation legislation. E. H. Brown. *Ry Age* 55:1180-1 D 19 '13

Workshop management

Bettering the efficiency of the structural shop. E. J. Knapp. *Eng M* 45:81-8 Ap '13

Lessons of Gilbert & Barker shops, Springfield, Mass. J. Nelson. *il plans Iron Age* 91:15-9 Ja 2 '13

Making an accurate delivery promise. S. Dean. *Iron Age* 91:63-4 Ja 2 '13

New methods of distributing time in the shops of the Indianapolis traction & terminal co. *il Elec Ry J* 42:464-5 S 20 '13

Operating details of Dodge brothers plant, Detroit. *il Iron Age* 91:144-6 Ja 9 '13

Practical design as it concerns the shop. E. J. Knapp. *Eng M* 16:115-6b D '13

Repair shop design and operation. *il Elec Ry J* 42:571-81 O 1 '13

Shop schedule. H. Gardner. *Ry Age* (Mch ed) 87:423-7 Ag '13

Stock system of a structural shop. F. Tissington. *Eng N* 69:165-6 Ja 23 '13

See also Factory management; Foundry management; Machine shop management; Mechanical handling; Railroads—Shops; Routing systems; Scientific management

Workshops

New Zealand school workshop. J. Peddie. *il Mach* 26:298-9 N '13

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World's fairs. See Chicago. World's Columbian exposition, 1893; Leipzig. International building exposition, 1913; San Francisco—Panama Pacific international exposition, 1915

Worley, John S., 1876—

Sketch. *por Ry & Eng R* 53:467 My 17 '13

Worm gearing. See Gearing, Worm

Wounds

Destructive effect of bullets. A. Sigmann. *Sci Am* 109:243 S 27 '13

Other side of war; effects of modern weapons. *Sci Am* 109:162 Ag 30 '13

Wrecking

Wrecking a four-story concrete building in Chicago. *il plan Eng Rec* 67:176 F 15 '13

Wrecking the Balakala stack at Coram, Cal. *il Eng & Min J* 95:685 O 11 '13; Same.

Power 38:638 N 1 '13

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Wrecking cars

Derrick cars and wrecking cranes for electric railways. *il Eng N* 69:1060-1 My 22 '13

Equipment for clearing wrecks. *il diagrs Am Eng* 87:115-7 Mr '13

Wrecking cars of 150 tons' capacity, Norfolk & Western Ry. *il Ry & Eng R* 53:251 Mr 15 '13

Wren, Sir Christopher, 1632-1723

Contributions to the history of the English playhouse. B. Hamilton. *il Arch Rec* 33:359-68 Ap '13

Wright, Frank Lloyd

Studio-home of Frank Lloyd Wright; pictures. *Arch Rec* 33:45-54 Ja '13

Wright, Henry, architect

Co-operative group planning. D. E. Tarn. *il plans Arch Rec* 34:467-75 N '13

Writing

See also Capitalization; Graphology; Hieroglyphics

Wrought iron

Manufacture of wrought iron. J. P. Roe. *il plan Iron Tr R* 52:353-66 F 6 '13

Proposed standard specifications for wrought-iron plates. *Iron Age* 92:53-4 Jl 3 '13

Specifications for wrought iron plates. *Iron Tr R* 53:39 Jl 3 '13

Steel, wrought iron and corrosion. G. Schuhmann. *il Iron Age* 92:1199-3 N 26 '13

X

X ray photography. See Radiography

X-rays

More light on the X-rays. *Elec W* 61:811 Ap 19 '13

Radiations old and new. W. H. Bragg. *il Sci Am* 8 75:341-2, 358 My 31-Je 7 '13

Roentgen-ray interference phenomena. *Elec W* 62:1194-5 D 13 '13

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Yacht racing

Another contest for the America's cup, il
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American-built steam yacht Lydonia, A. S.
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Another contest for the America's cup, il
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515-6 D '13
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Yakima Indian reservation

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Yale lock

Prototype of the Yale lock, W. Schumann, il
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Harbor construction at Kobe and Yokohama,
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Yonkers, N. Y.**Rapid transit**

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Young men's Christian association

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Young men's Christian association buildings

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Young women's Christian association buildings

Headquarters building, New York, il plan
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Youngstown sheet and tube co., Youngstown, O.

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Chem Eng 11:337-10 N '13

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Prospect for spelter, Eng & Min J 95:194-
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Rapid determination of zinc, C. Offerhaus,
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Lead and zinc mining in Colorado, G. E. Col-
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Missouri

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Lead and zinc in Oklahoma, L. C. Snider,
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United States

Situation in spelter, Eng & Min J 95:1063 My
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Spelter statistics for 1912, W. R. Ingalls, Eng
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Zinc industry in 1912, Eng & Min J 95:69-75 Ja
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Zinc ore prices, Eng & Min J 96:704 O 11 '13

Utah

Occurrence of oxidized zinc ores at Tintic,
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Zinc mining in 1912, J. E. Kennedy, map Eng
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Zinc alloys

Micro-chemistry of corrosion, C. H. Desch and
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Weiss, Elec Ry J 41:151-3 Ja 25 '13; Same,
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Eng R 53:84-8 Ja 25 '13; Same, Ry Age 54:
165-7 Ja 24 '13

Corrosion of spikes in ties treated with zinc-
chloride, Eng N 69:270 F 6 '13

Zinc-dust precipitation at Cerro Prieto, Son-
ora, Mexico, H. S. Munroe, il Eng & Min
J 95:1085-6 My 31 '13

Zinc metallurgy

Art of electric zinc smelting, Met & Chem
Eng 11:582-3 O '13

Byproducts in electric zinc smelting, W. M.
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Electric zinc furnace, Met & Chem Eng 11:
583-5 O '13

Electric zinc smelting, F. Louvrier, Met &
Chem Eng 11:303-5 N '13

Electrodeposition of zinc, Eng & Min J 96:
502 S 13 '13

Formation of ferrites in roasting blende, G.
S. Brooks, bibliog Am Inst Min E Bul 77:
829-42 My '13

Historical note on zinc smelting, Eng & Min
J 96:741-2 O 18 '13

Igneous concentration of zinc ores, F. L.
Clerc, diag Eng & Min J 95:222-6 Ja 25
'13

Metallurgy of zinc, W. R. Ingalls, Eng & Min
J 95:105-7 Ja 11 '13

Metallurgy of zinc in 1912, Met & Chem Eng
11:6-7 Ja '13

Preparation of ore containing zinc for the
recovery of other metals, S. E. Bretherton,
Am Inst Min E Bul 80:1481-7 Ag '13

Present status and future prospects of the
metallurgy of zinc, symposium, Met &
Chem Eng 11:677-9 D '13

Recent progress in electrolytic process for
zinc, Met & Chem Eng 11:43-4 Ja '13

Reducibility of metallic oxides as affected by
heat treatment, W. M. Johnson, Am Inst
Min E Bul 79:1137-45 Jl '13

Scandinavian electric zinc smelting, Eng &
Min J 96:1030 N 29 '13

Single jig mills in Wisconsin zinc district,
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Smelting zinc in an electric furnace, F. L.
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Zinc mining costs at Joplin, Eng & Min J
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